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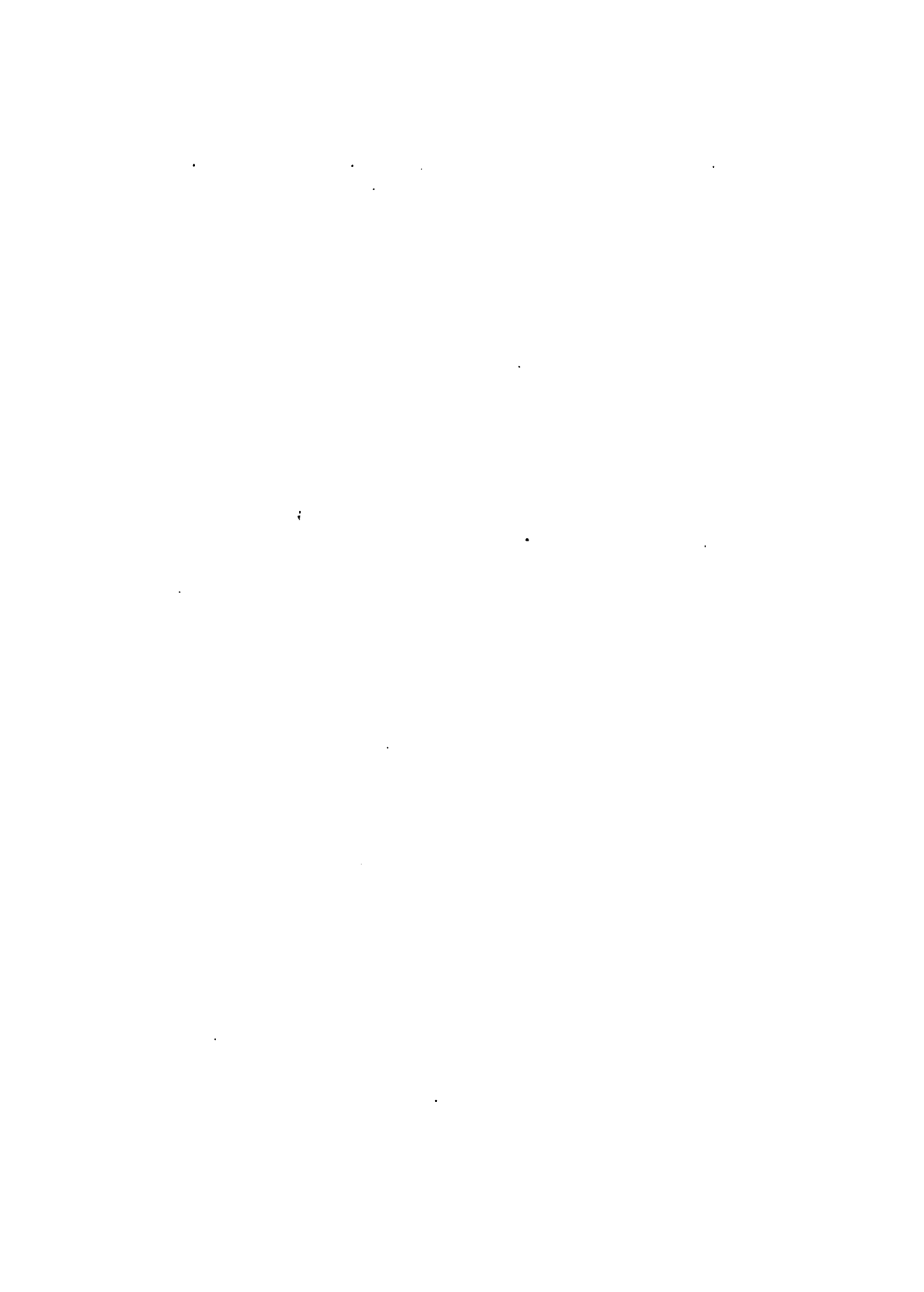
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TWENTY-FOURTH
ANNUAL REPORT
OF THE
Chief Inspector of
Mines,

TO THE
Governor of the State of Ohio,

FOR THE YEAR 1898.

COLUMBUS, OHIO:
THE WENTWORTH CO., STATE PRINTERS,
1899.



Journal

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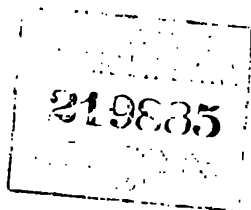
FOR THE YEAR 1898.

COLUMBUS, OHIO:
THE WESTBOTE CO., STATE PRINTERS,
1899.

Comptroller

Q M Hall

Chief Inspector of Mines



NOV 23 1904
JUL 18 1904
VIA RAIL

OFFICE OF THE CHIEF INSPECTOR OF MINES,
COLUMBUS, OHIO, October 17, 1899


HON. ASA S. BUSHNELL, Governor of Ohio:

SIR: In accordance with the Revised Statutes of Ohio relative to mines and mining, I have the honor to submit to your Excellency the twenty-fourth annual report of this department.

Very respectfully.

ROBERT M. HASELTINE,
Chief Inspector of Mines.

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ANNUAL REPORT.

To His Excellency, ASA S. BUSHNELL, Governor of Ohio:

SIR: In compliance with the statute relating to mines and mining, I have the honor to submit to you the twenty-fourth annual report of the Department of Mines and Mining as provided by section 293 of the Revised Statutes. I regret the impossibility to file the report at an earlier date owing to the inability to secure reliable returns from the operators of the State. Numerous failures and assignments, whereby property was placed in the hands of the court, caused vexatious delays. Again, during the early portion of the time devoted to the work, the writer's time was absorbed in making inspections in the several coal fields, thus retarding the work to this late period.

The statistical portion of the report has been arranged to accord with the calendar year, and that part which is devoted to the inspection of mines extends from November 15, 1897, to November 15, 1898, and is considered the fiscal year.

The year opened with the scale rate for pick mined coal at 56 cents per ton. This rate prevailed until April 1, 1898, when it was advanced to 66 cents, where it remained until the close of the year. The industrial depression, which prevailed during the past four and one-half years, continued with more or less severity until about the 1st of September, when a sudden demand arose, which lasted until the close of the year.

I am grateful to be able to report that, with the exception of a few local suspensions, the relationship between the operators and miners was harmonious throughout the year.

On December 31, Mr. John P. Jones having tendered his resignation as inspector of the Sixth District, created a vacancy, which existed until January 17, when Mr. Wm. K. Moore, of North Lawrence, was appointed as his successor. On February 15, 1898, the term for which Mr. Thomas H. Love had been appointed having expired, Mr. James P. Davis, of Dell Roy, was appointed to succeed him as inspector in the Fifth District. On July 15, Mr. David B. Wilson, of Corning, was appointed inspector of the Third District to

succeed Mr. Robert H. Miller, whose term had expired, and on the same date Mr. Lucius W. Hull, of Gloucester, by appointment, succeeded Mr. Alex Beattie as district inspector in the Second District.

The industries assigned to the care of the department embrace the production of coal, fire clay, iron ore and limestone. The returns received show the production of coal to have been 14,058,135 tons, an increase of 1,609,313 tons, as compared with the previous year. Of this amount 8,805,537 tons were produced by pick mining and 5,252,598 tons were recovered by mining machines. Of the year's production 1,380,956 tons went to the lake ports for distribution.

There were 29,365 persons employed in the industry, an increase of 508 as compared with the year of 1897. Of this number 22,819 were miners and 6,546 were day hands. Of the miners reported, 805 were engaged in operating mining machines. 5,887 men were employed in shooting down and loading out the coal after it had been undermined by the machines.

During the year 1898 there were 1,250 mines in the State. Of this number 1,155 were in operation more or less of the time. Seventy-nine new mines were opened and 73 were worked out and abandoned.

The average time worked is given at 150½ days, the same as during the year 1897; 1,993 inspections were made by the members of the department during the year, and 99 sets of scales were tested. There were 341 casualties in and about the mines of the State. Of this number 52 resulted fatally, 155 were of a serious character and 134 consisted of minor injuries.

The returns of the fire clay industry indicate a gain of 31 days in the time worked, and an increase of 68 men in the number of persons employed. There was also a gain in production of 204,195 tons. The total production of fire clay equaled 1,026,922 tons, the greatest in the State's history.

Notwithstanding the active revival in the iron trade, the production of native ore amounted to but 51,659 tons. While this is a gain of 1,392 tons, as compared with the previous year, it is but 20 per cent. of the production of the year 1888.

In the production of limestone 41 counties made returns, as compared with 44 in 1897. Of the nine classifications, five reported gains, while four returned losses. The time worked is given at 132 days, as compared with 131 in 1897. There were 3,149 persons

engaged in the industry as compared with 8,898 during the preceding year.

To enforce a compliance with the statutes it was not found necessary to invoke the aid of the courts. Although District Inspector Miller made an affidavit against one of the prominent operators of Muskingum county for failing to comply with the law in regard to monthly reports, a prompt compliance with the law rendered the serving of the papers unnecessary and the prosecution was dropped.

This report is subdivided into 28 subjects, each of which is accompanied by one or more tables, which are tabulated in such a form as to make the subject under discussion more intelligible. There are 10 reports of District Inspectors setting forth their work during the year. These are followed by a list of the coal, fire clay and iron ore mines and the limestone quarries, and as an appendix there is attached a codification of the mining laws. The index follows last, from which any of the several subjects can be readily found.

COAL SHIPPED TO THE LAKE PORTS DURING THE YEAR.

To secure this information has been found to be a most difficult undertaking. This is due to the fact that the railroad companies who are engaged in transporting coal for the lake traffic do not keep a record of its distribution or destination. Again, the Government records are so imperfectly kept that it is impossible to learn the distribution of the coal from that source. This is caused by the Custom House laws permitting vessels to clear from some of the lower lake ports, Buffalo or Erie, for instance, for one of the upper ports and stop at Ashtabula or Cleveland and take on a cargo of coal, then departing without leaving a record of the transaction with the Custom House officer at that port; hence it is that the total tonnage as given by the railway companies centering at the lake harbors differs widely from the records in the Custom House. An effort has been made to induce the Treasury Department to correct this law, but the seeming indifference on the part of the members has prevented the subject from being presented to the Secretary. It is still hoped that some system of keeping records will be adopted so that correct statistics may be secured of the business transacted at the several lake ports.

The accompanying tables are prepared to more clearly exhibit the amount of coal that passed over the docks at the different lower lake ports to points for distribution and consumption in the upper lakes,

also the amounts from the several ports during the past eight years. The returns for the year that has just closed show that there were 9,270,568 tons handled over the docks at the several lake ports as indicated in the tables. This is a gain of 1,273,320 tons as compared with the preceding year. Of this amount 3,058,528 tons were of the anthracite variety. This is an increase of 313,398 tons over the amount given in 1897, and a decrease of 117,194 tons when compared with 1896, and of 37,793 tons when compared with 1895.

It is regretted that the distribution of 236,755 tons of bituminous coal at Buffalo could not be obtained. Of the amount of which returns have been received it is found that there were 40,355 tons of anthracite coal and 460,062 tons of bituminous coal that went to Canadian ports; 3,018,173 tons of anthracite coal and 4,829,886 tons of bituminous coal went to American ports, and 685,337 tons were used as vessel fuel. It will be observed that the two last amounts would be materially changed were it possible to learn the distribution of the bituminous coal at the port of Buffalo.

From the table it will be seen that of the year's shipments 6,212,040 tons of coal came from the bituminous mines. This is a gain over the previous year of 959,922 tons. It is also an increase of 446,435 tons over the amount given in 1896, which was the largest in the State's history.

By a further review of this table it will be noticed that the bituminous coal received at the lake ports 4,007,755 tons came from the mines of Pennsylvania, which is a gain of 680,941 tons when compared with 1897. It is however a loss of 330,060 tons when compared with 1896, when the returns were the highest of any year of which the department has a record. The past year's returns of Pennsylvania coal represents 64½ per cent. of the entire year's shipment of bituminous coal, as compared with 63 3-10 per cent. during 1897, 75 2-10 per cent. in 1896, 61 1-10 per cent. in 1895, 65 9-10 per cent. in 1894 and 49 9-10 per cent. in 1893.

From the coal fields of Ohio there was received 1,380,956 tons, an increase of 25,818 tons when compared with 1897. It is also an increase of 113,921 tons as compared with 1896, and of 14,242 tons when compared with 1895, the year when our lake tonnage first began to decrease. For several years prior to that time the amount of Ohio coal handled ranged from 1,500,000 to 2,100,000 tons annually. By a farther examination of the table it will be found that the year's tonnage of Ohio coal equals 22½ per cent. of the bituminous coal handled, as compared with 25 8-10 per cent. in 1897, 21 9-10 per cent.

in 1896, 323-10 per cent. in 1895, 288-10 per cent. in 1894, 46 per cent. in 1893 and 45 per cent. in 1892.

From West Virginia there came 823,329 tons, a gain of 261,163 tons as compared with 1897. The rapid strides which West Virginia coal is making upon the lake trade will be seen when it is remembered that in 1896 that State furnished but 159,117 tons. By a comparison of the rate per cent. represented, it is evident that the State is holding its own in the competitive field, as the year's tonnage represents 13½ per cent. of the bituminous coal, as compared with 10½ per cent. during the previous year, 36-10 per cent. in 1896, 6½ per cent. in 1895, and 53-10 per cent. in 1894. These comparisons clearly indicate that Ohio coal is being rapidly crowded from the markets of the upper lakes by the coal from both the states of Pennsylvania and West Virginia, and the rapidity with which it is being displaced is certainly cause for alarm. It is plainly manifest that the Ohio operators must remedy the defects that exist in preparing the coal, as well as inject more energy into the trade or they will shortly be driven from the lakes.

TABLE SHOWING THE TONNAGE OF LAKE COAL SHIPPED FROM OHIO, WEST VIRGINIA AND PENNSYLVANIA MINES DURING 1898, ALSO THE VARIETY AND HOW IT WAS DISTRIBUTED.

Lake ports.	Pennsylvania.		Ohio.		West Virginia.		Maryland.		To foreign ports.		To domestic ports.		Vessel fuel.	Total.
	Anthracite.	Bituminous.	Bituminous.	Bituminous.	Bituminous.	Anthracite.	Bituminous.	Anthracite.	Bituminous.	Anthracite.	Bituminous.			
Buffalo, N. Y.	2,455,191	286,755							40,355		2,414,836			2,691,946
Erie, Pa.	608,337	316,881								752	608,337	190,001	117,131	926,221
Conneaut		166,131							181,050				35,472	166,131
Ashtabula..		1,091,457							6,274			975,139	109,644	1,091,067
Fairport....		270,843		39,880	98,011	35,575						273,241	33,227	306,468
Cleveland.		1,913,890		115,061	47,445	98,011			290,221			1,501,075	279,064	2,049,360
Lorain..		8,063		122,766	140,512	47,445				24,634		137,846	9,025	172,269
Huron				398,175	396,901	140,512				5,821		245,432	11,525	263,278
Sandusky..				797,465	113,885	396,901				11,856		648,362	31,738	664,976
Toledo.		512				113,885				5,021		849,230	57,611	911,962
Totals...	3,068,528	4,107,755		1,380,056	823,320				40,355	400,062	3,018,173	4,059,886	695,387	9,270,568

Total lake shipments, 9,270,568 tons.

Total lake shipments (bituminous coal), 6,212,080 tons.

The distribution of 280,755 tons of bituminous coal at Buffalo was not obtainable.

TABLE SHOWING SHIPMENTS OF COAL FROM LAKE PORTS FROM 1880 TO 1888 INCLUSIVE.

Lake ports.	1880.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	Gain.	Loss.
Buffalo, N. Y.	2,044,134	2,365,946	2,852,380	2,703,073	2,435,355	2,030,706	3,565,022	2,334,339	2,401,946	357,617	.....
Erie, Pa.	130,304	540,000	567,028	625,023	711,928	727,184	677,065	736,006	920,221	184,313	.....
Conneaut.	.....	.....	.....	23,184	80,028	166,073	201,178	185,043	106,131	.....	14,317
Ashtabula.	452,304	380,375	720,307	747,653	604,735	906,773	1,087,242	962,970	1,001,067	98,087	.....
Fairport.	63,390	66,914	114,734	234,040	300,923	325,064	410,307	213,971	306,468	92,497	.....
Cleveland.	922,536	1,016,487	1,724,831	1,512,308	967,513	1,055,490	1,576,583	1,943,964	2,040,390	106,426	.....
Lorain.	227,181	244,811	351,168	520,405	303,900	277,000	137,235	151,634	172,290	20,655	.....
Huron.	150,000	200,000	240,000	227,444	213,505	218,000	257,050	176,028	263,276	87,250	.....
Sandusky.	271,540	157,571	157,515	195,276	281,363	223,134	281,351	318,451	694,976	376,525	.....
Toledo.	940,000	947,284	854,925	683,533	834,252	716,000	707,655	944,375	911,863	.....	23,013
Totals.	5,200,440	6,016,331	7,360,312	7,773,568	6,860,237	7,313,234	8,041,327	7,997,243	9,270,566	1,322,320	43,080

VESSEL LOADING MACHINES.

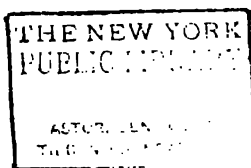
From the best information that can be obtained the first record of coal placed on board the lake vessels was at Cleveland, between the years of 1850 and 1856. The next record is at Lorain and Ashtabula during 1880. In 1883 there is a record of coal being loaded at Toledo, Sandusky and Fairport. At Huron the first shipment is reported in 1886, and at Conneaut it was in 1893 that the first record appeared.

It is doubtful if any subdivision of the industries of the country has witnessed as marked an advancement as has followed the loading of coal upon the vessels at the several lake ports. The evolution has been as marked in the increased rapidity with which the coal is placed on board the vessels as in the diminution of the cost at which it is handled.

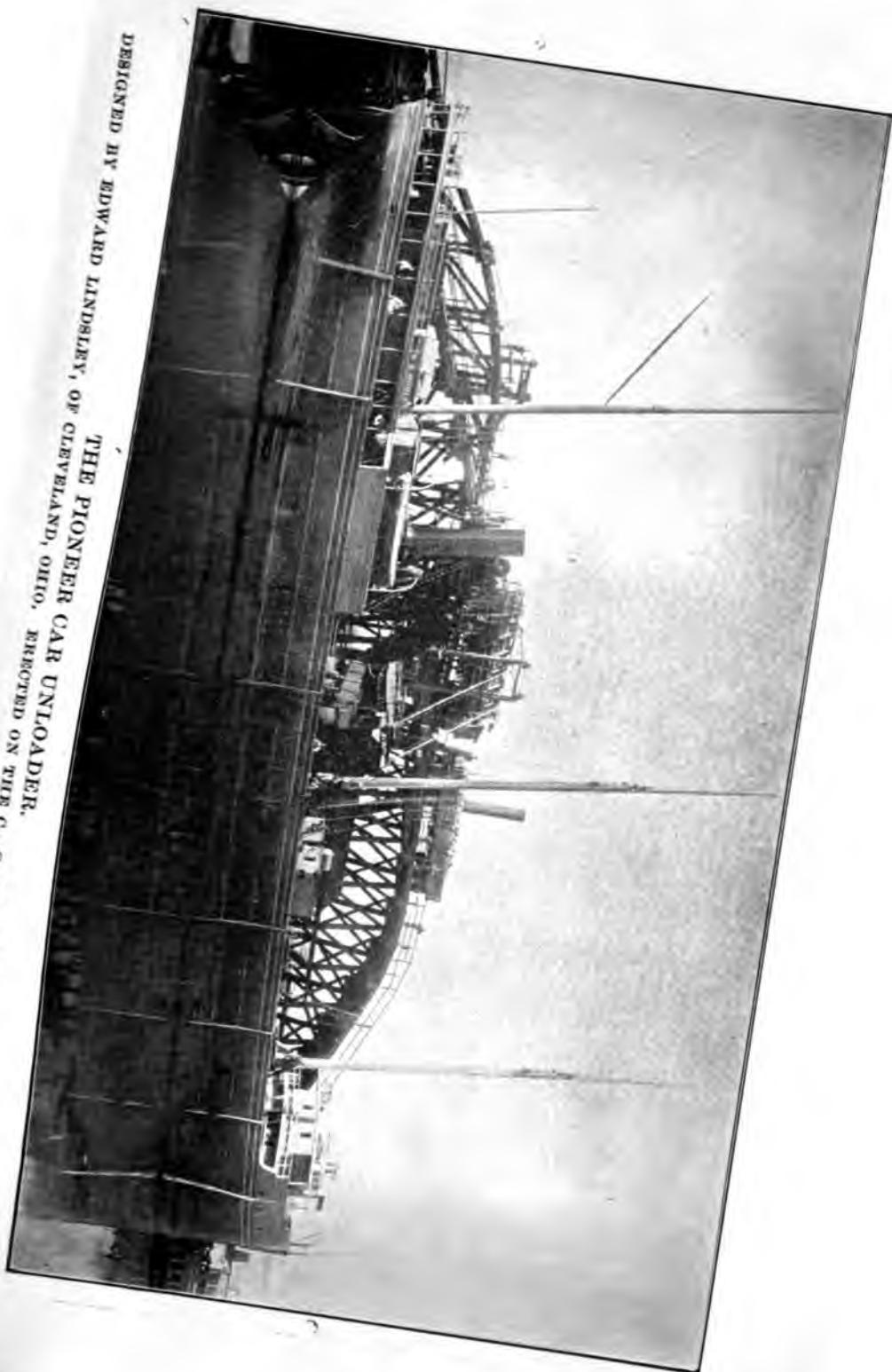
The first shipments by lake were made from the harbor of Cleveland and between the years of 1850 and 1856, which was prior to the building of the Mahoning railroad. The coal, mostly from the Mahoning Valley, came by way of canal boats, each of which held from 50 to 75 tons. During these years it was customary to first shovel the coal from the boat on the docks, and then, for the purpose of making room, it was wheeled back out of the way. When a cargo had been collected it was loaded into barrows and wheeled on to the dock of the vessel, where it was dumped down the hatchway, allowing it to fall the full depth of the boat. At the low rate of wages then prevailing, to cast the coal from the canal boat to the dock cost 15 cents per ton and 10 cents was paid for wheeling it back. Then for loading the coal into barrows and wheeling it on board the vessels 15 cents was paid, to which five cents for trimming was added, making a total cost for transporting the coal from the canal boat on board the lake vessel 45 cents per ton. This system prevailed for several years, when the shipments became heavier, and it became the custom to draw the canal boat alongside the lake vessel. From the side of the latter a staging was built, on to which the coal was thrown, and then again shoveled on to the deck of the vessel, and then into the hatches. This dispensed with the necessity of wheeling it back as was the former custom, and it inaugurated a saving of 10 cents per ton. The early cargoes contained from 150 to 250 tons. It was a rare thing to be able to sell more than that amount of coal to one party until about 1864, the close of the war. In fact, 500-

THE AT A SECTION OF STOCKING COAT.





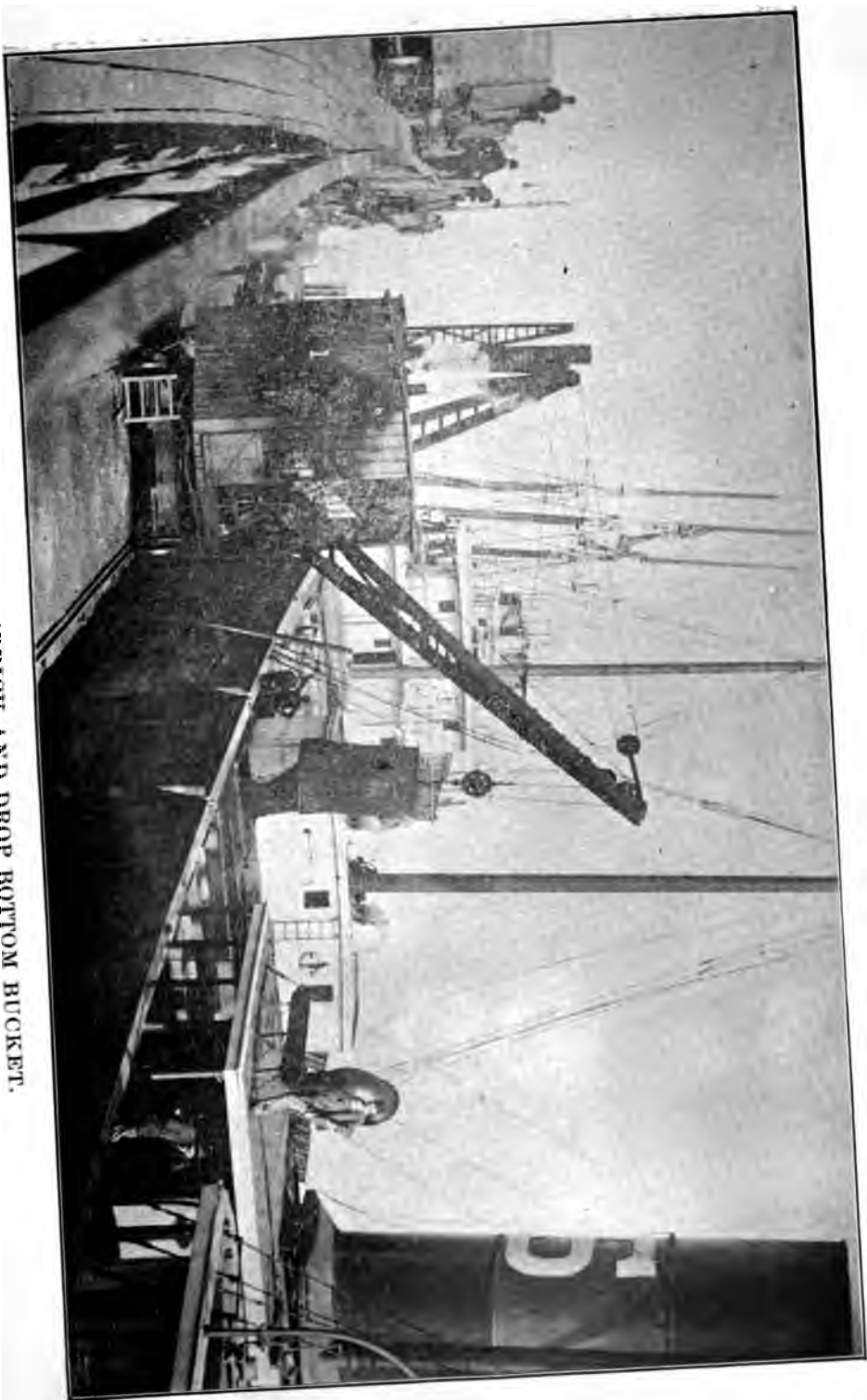
DESIGNED BY EDWARD LINDSEY, OF CLEVELAND, OHIO.
THE PIONEER CAR UNLOADER.
ERECTED ON THE C. C. & S. Docks.



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ton vessels were the maximum until about that time, and not until after the close of the war was a vessel of a thousand-ton burden brought into the service. In the early days it was considered a good day's work with as many men as could be worked to advantage to load a 200-ton vessel a day. In this way coal was handled until some time after the completion of the railroads, when a chute was constructed, which extended from the side of the track to the hatch of the vessel. Into this the coal was thrown from the railroad cars and allowed to slide into the boat. This system of handling coal was adopted by the Big Four road at Cleveland, also at the harbors of Ashtabula and Sandusky in a small way until about the year of 1870. The first coal from the Hocking Valley was brought to the Cleveland harbor in 1869. This was unloaded directly from the cars into barrows and wheeled on board the vessels at a cost of 20 cents per ton. This was the most economical means then in force. In this way during the summer of 1870 Babcock & Card loaded 70,000 tons, using a depot as a wharf.

From Mr. John Stovering it was learned that the first revolving crane was built by Lyman for Mr. Thomas Axworthy, and it was used on the Cleveland docks in 1875 and 1876. The next crane was built for David Barnheisel, and was placed on the Massillon Fuel Company's docks at Cleveland during 1876 and 1877. This machine was operated by Mr. Long, who afterwards designed the Long Car Dumping machine. The next year three more derricks were built by the Excelsior Iron Company for Mr. McMyler, to be used on the Cleveland docks. During that same year two more were built for the Toledo and Ohio Central railway at Toledo and for the Wheeling and Lake Erie railway to be used at Huron. These were all designed for one-ton buckets, and the loading of 400 tons in 12 hours was regarded as a good day's work.

During the summer of 1879 or 1880 one was installed at Lorain and others at Cleveland. All of these derricks handled buckets, which contained a ton of coal each. They were held in position by a catch attached to the bale, and when the bucket was in a position to be emptied, the engineer pulled a rope, liberating the latch, and the bucket tipped of its own weight. This reduced the price of loading from 20 to 18 cents per ton. To economize further the size of the buckets was increased until 1892, when the standard bucket was made to hold five tons of coal.

During the summer of 1890 the Ludlow bucket, with the drop bottom, was brought into use, which permitted the coal to be lowered near the bottom of the vessel, thus saving a great deal of breakage. This, and the increased size of the bucket reduced the price to about 15 cents per ton. The revolving derrick remained the modern unloading machine until during 1893, when the Lindsley Car Dumping machine was put into service on the docks of the Cleveland, Canton and Southern railway at Cleveland. This was designed by Mr. Edward Lindsley in 1889 or 1890. It is the pioneer of the 15 machines now located at the several lake ports in the State. The plan consisted of an elevated cylinder, into which the loaded car was drawn, and from which it was lowered by means of a cable over an incline attached to the end. The car was then clamped, and revolving in a cylinder it emptied the coal into a chute to which was attached a telescopic spout, which extended into the hatch of the vessel. This machine cost \$45,000, and has a record of emptying 25 cars in 12 hours. The location was not an ideal one, which necessitated many alterations in the original plans, and, as a result, it met with some unfortunate changes. It was also found to lack sufficient strength in some parts, partially due, no doubt, to the increased size of the railroad cars that were brought into use pending its construction. It also had the opposition and prejudice of many shippers of coal and vessel owners, and perhaps some opposition from labor, and, although it has since been removed, it was by no means a failure, as some people seem to think. It will be seen that other designers profited by Mr. Lindsley's experience, as they have imitated many of his valuable ideas. He has furnished the writer with a schedule and model for a successful car unloader, which, he says, can be built for \$25,000, with a current capacity of 300 cars in 10 hours, or from 900 to 1,000 tons an hour.

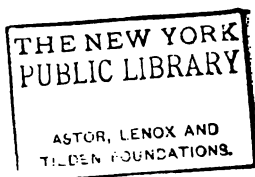
The second unloading machine was the McMyler End Dump, and was first used on the Lake Shore and Michigan Southern docks at Ashtabula in June of 1895. This machine may be described as a traveling cantilever crane. It is supported by a pivot, which travels on a line of railway track paralleling the dock. On the tracks that support the pivot there is constructed an engine for drawing the car up an incline, and when it has passed the center the car and the trunnion are inclined by the aid of a hydraulic ram to such an angle as to discharge the coal into a pan and then through a telescopic chute into the bottom of the vessel, the railroad having equipped 2,000 of their cars in such a way that the end gate could be raised to

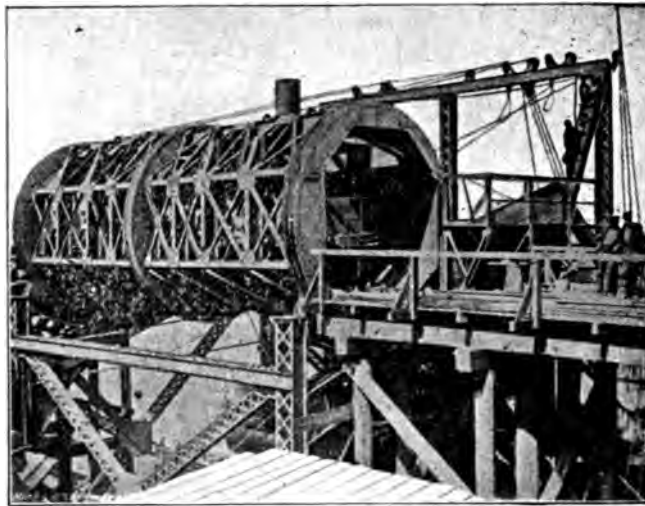


McMYLAR MACHINE. END DUMP.
ON L. S. & M. S. R. R. AT ASHTABULA, OHIO,



McMYLAR END DUMP.
ON LAKE SHORE AND MICHIGAN SOUTHERN R. R., ASHTABULA, OHIO.





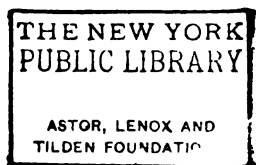
LONG CAR UNLOADER.
ON THE ERIE R. R. DOCKS, CLEVELAND, OHIO.



LONG CAR UNLOADER.
ON ERIE R. R. DOCKS, CLEVELAND, OHIO,



LONG MACHINE.
ON BRIDGE TO BE BUILT AT CLEVELAND, OHIO, SHOWING TELESCOPIC SPIDERS.



allow the coal to pass out. When the car is emptied, the trunnion is reversed and the car is discharged. The machine is then moved along to opposite another track, as well as the next hatch, thus allowing the trimming to be done in the first one. This operation is repeated until the boat is loaded. By thus shifting the discharge of the coal the boat is able to maintain an even keel. Neither is it strained, and the expense incident to its being moved is omitted. This machine cost \$30,000, and has a capacity of about 12 cars an hour. It requires four men at an expense of about \$10 a day to operate it. The rapidity of loading with the end dump machine at Ashtabula was the means of inducing the larger boats while clearing from Buffalo to stop and load with coal. Owing to the slight delay the operators secured a reduction in the freight rate of five cents per ton. It is said that this was the first instance where the large boats could be induced to stop on their way up the lakes.

Another machine built by the McMyllar people, which was a duplicate of the above was erected at Fairport harbor during the summer of 1895. It was built to work with greater rapidity, and has been able to handle 15 cars an hour. The Pittsburg and Western Railway company arranged 2,000 of their cars to be operated in this trade. The machine cost \$45,000, and requires the same amount of help to operate it as the former.

The next machine was the invention of Mr. Timothy Long, and was built by the Excelsior Iron Works of Cleveland for the Erie railroad. It went into service in September of 1895. This machine is provided with a cylinder 40 feet in length and of such a diameter as to receive a railway car, which is pushed by a switch engine. Four automatic clamps hold the car in place. One stroke of the cylinder causes the car cylinder to roll up an incline plane, to which two automatic spouts are attached. When the coal first leaves the car the pan stands horizontally, which prevents the coal from sliding down the spouts with great rapidity. After the spouts are once filled with coal the breakage is greatly reduced, as the pan is kept filled with coal while the loading continues. The stability, simplicity and speed and the cost of operating it is at least the equal of any machine yet introduced. It cost \$25,000, and the first afternoon it started unloaded 64 cars. It has a record of 24 cars in 20 minutes. Its best record was while loading two vessels, when it dumped 176 cars in eight and one-fourth hours. During the season of 1898, between the 18th of March and the 16th of December,

during which time there was lost on an average a day a week, this machine loaded over 800,000 tons of coal. Four men are required to operate it, one engineer to operate the cylinder, one fireman and the two chute tenders.

The fifth installation of vessel unloading machines, really the fourth in design, was built by the McMyler people for the Cuddy-Mullen Company during the summer of 1896. This was the Side Dumping Machine, the car being pushed on a bridge, and thus hoisted vertically to the height of the chute, where it was turned over on its side, the coal falling inside the chute, from which through a telescopic spout, it passed into the vessel. The average daily capacity of this machine is from 6,000 to 7,000 tons and the maximum capacity is 8,500 tons during 24 hours. This machine worked without friction from the start and loaded 500,000 tons of coal during the first year of its existence. The original cost was about \$35,000. It was constructed with a view of handling cars carrying 35 tons. Four men are required to operate it. During the year of 1898 it was rebuilt so as to enable them to handle the 50-ton steel cars, and the machine is said to be strictly up to date. This plant is located on the Lake Shore, on the outer harbor, for which it is claimed to have an advantage over the other Cleveland plants inasmuch as it avoids the towing of vessels up the river, and also permits the coaling of the largest vessels of the lake with the least possible delay.

During the summer of 1897 the McMyler Car Dumping Machine Company erected a second plant on the docks of the Valley railroad, which, with the exception of a few changes, was a duplicate of the one above described.

The latest machine designed by the McMyler people was during 1898, when two were built, one of which was erected at Conneaut and the other at Lorain, in both of which the side dumping principle is retained, but instead of hoisting the bridge and car as before, the cradle remains stationary, being hinged at one side, and the car is turned over, emptying its contents into a pan having a capacity of from 40 to 50 tons. This pan is raised to the elevation of the chutes, the outer side being gradually raised until the coal passes



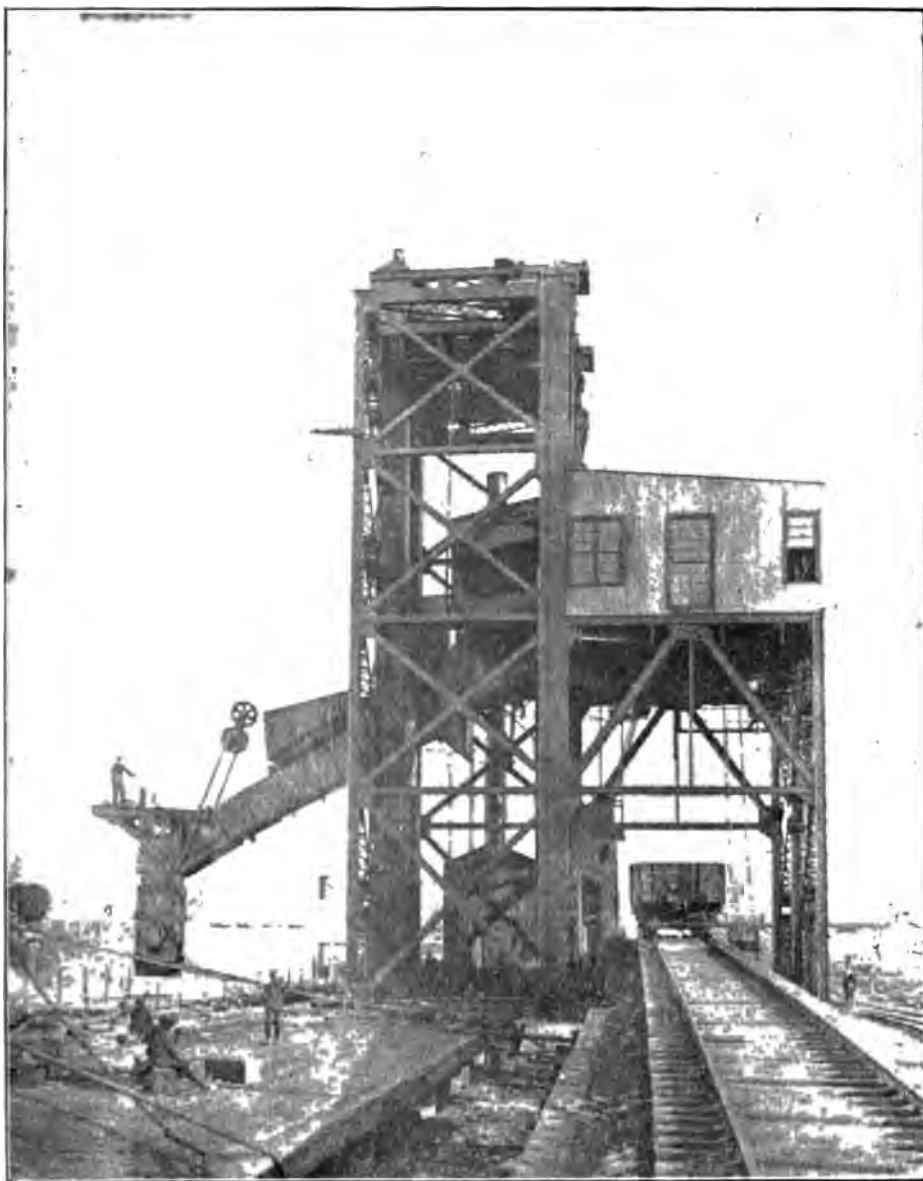
**McMYLAR SIDE DUMP, 1895 DESIGN.
CUDDY-MULLIN DOCK, LAKE FRONT, CLEVELAND, OHIO.**



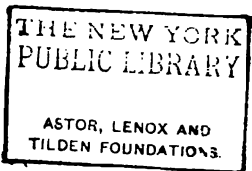
**McMYLAR SIDE DUMP. END VIEW. 1895 DESIGN.
CUDDY-MULLIN DOCK,
LOCATED ON THE LAKE FRONT, CLEVELAND, OHIO.**

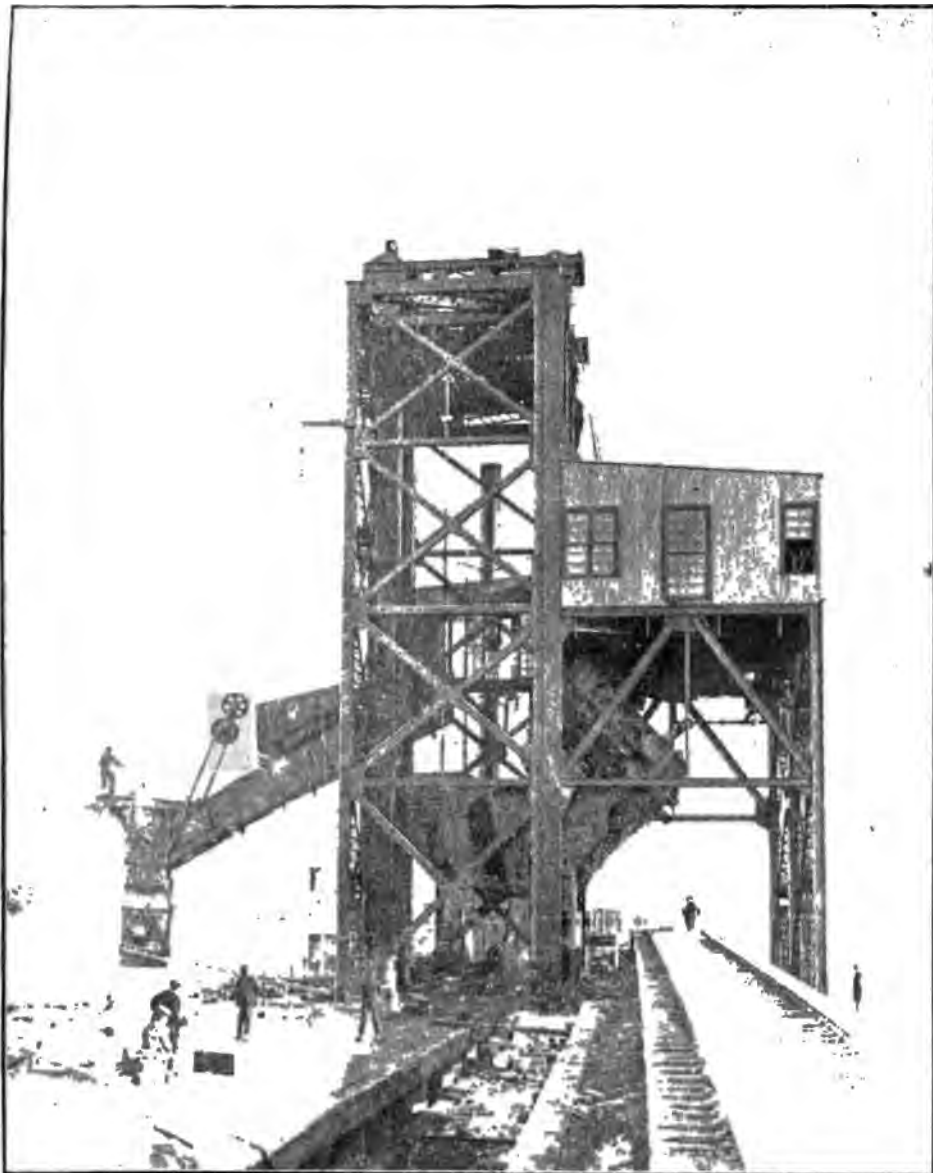
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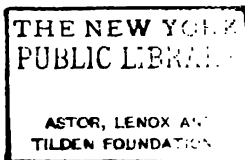


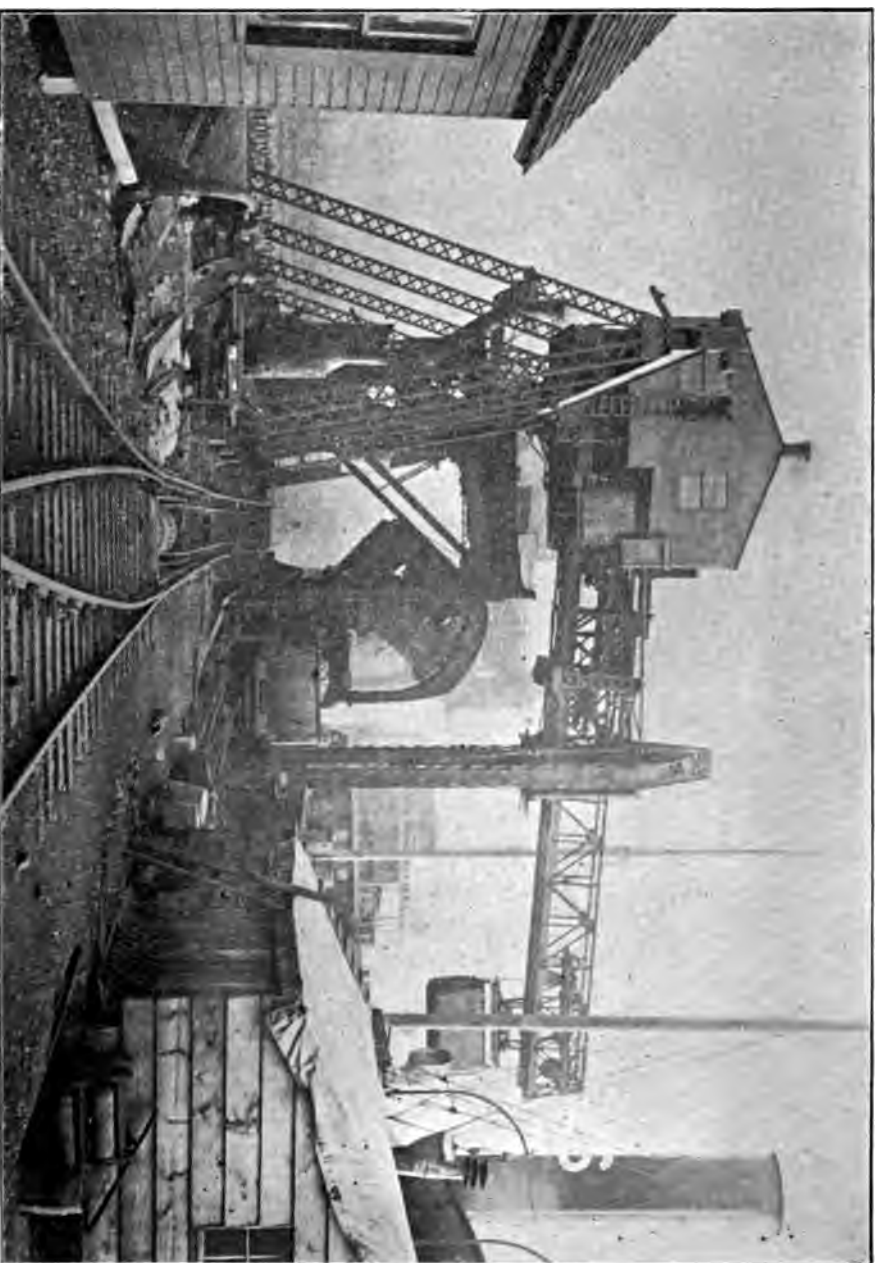
McMYLAR MACHINE.
ON DOCKS OF C. I. & W. RAILWAY, LORAIN, OHIO.
SHOWING CRADLE RETURNED, PAN RAISED TO CONNECT WITH CHUTE.





McMYLAR MACHINE.
ON DOCKS OF C. L. & W. RAILWAY, LORAIN, OHIO.
SHOWING CAR DUMPED. PAN TURNED TO MEET CRADLE, CHUTE LOWERED.

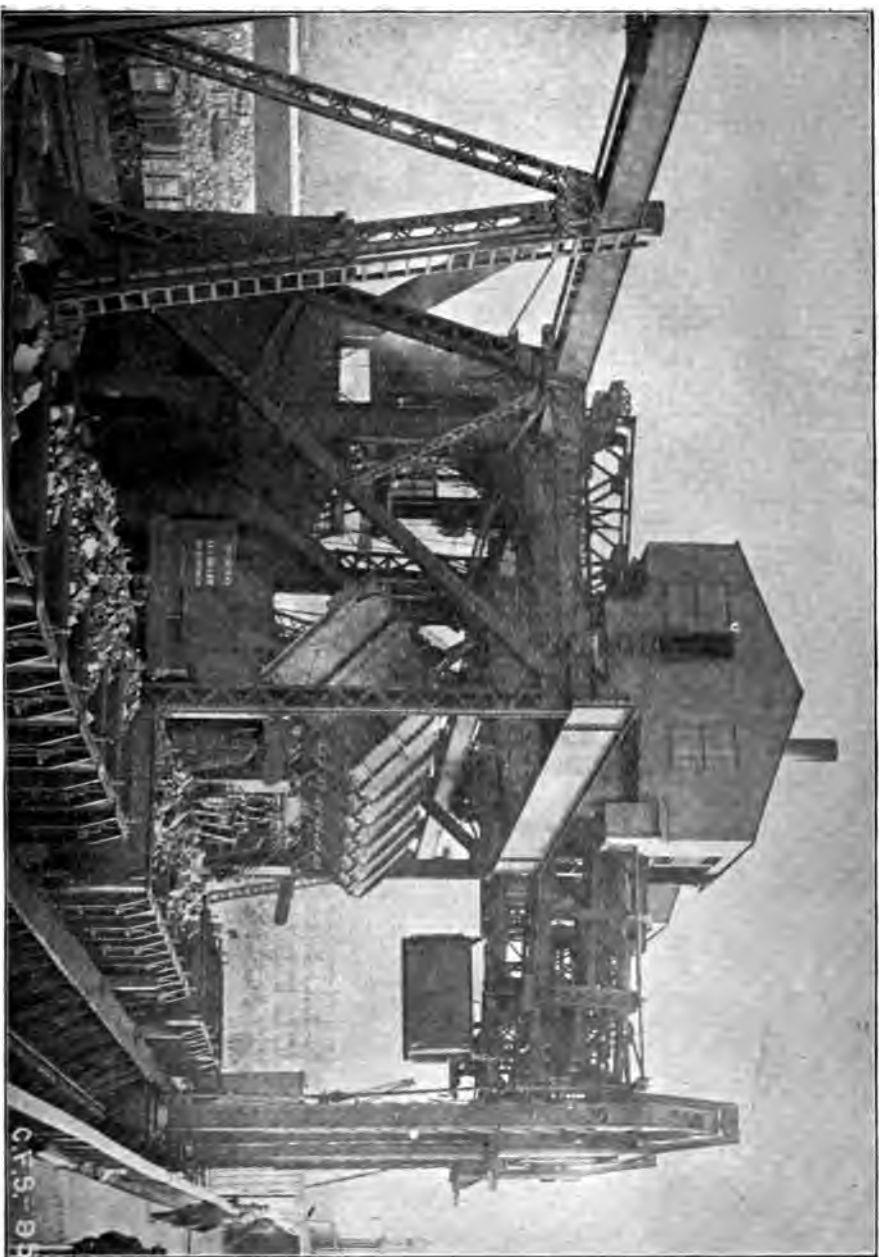




**BROWN UNLOADING MACHINE,
BUILT BY THE BROWN HOISTING AND CONVEYING CO., CLEVELAND, O., OPERATED AT CLEVELAND, TOLEDO, ASHTABULA AND HURON, O.**

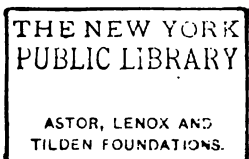
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BROWN UNLOADING MACHINE.
OPERATED ON DOCKS AT CLEVELAND, TOLEDO, ASHTABULA AND HIRON, OHIO.

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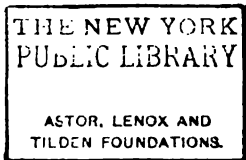




BROWN MACHINE. FRONT VIEW.



BROWN MACHINE. END VIEW.



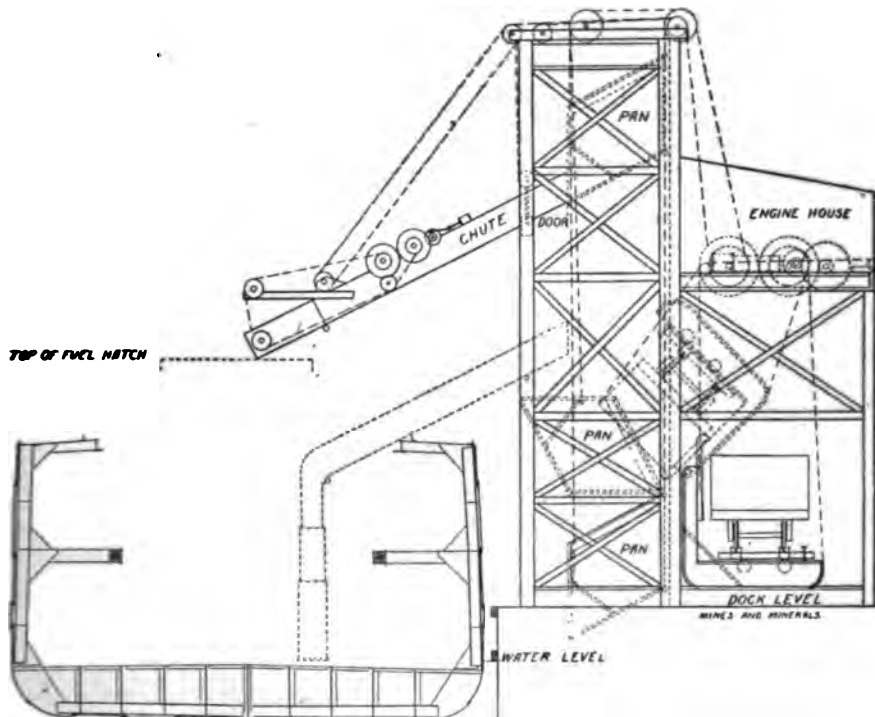


BROWN MACHINE. END VIEW OF CRADLE.

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ASTOR, LENOX AND
TILDEN FOUNDATION

inside the chute and through the telescopes into the vessel. The telescopic arrangement, however, is improved by the use of a door, which regulates the flow of the coal. These machines have a capacity of about 20 cars an hour, and cost about \$45,000 each. Four men are required to operate each machine.



MCMYLER MACHINE—LATEST DESIGN—1898.

During 1897 the Brown Hoisting and Conveying Machine Company of Cleveland erected five car unloading machines designed by Mr. Alex Brown. One was erected on the Cleveland and Pittsburg dock at Cleveland, one on the Hocking Valley, another on the Toledo and Ohio Central dock, both at Toledo, one at Ashtabula and one at Huron. Although Mr. Brown has followed an almost different line of procedure from the others, he retained some of the ideas advanced by Mr. Lindsley, one of which was the side dumping appliance. The car is placed on a revolving bridge, by the aid of a pushing device constructed between the rails and moved by the aid of a wire rope. This appliance pushes the cars on to the bridge, where it is securely clamped. The bridge then revolves and discharges the

coal into a large hopper, containing six compartments, the bottom of each being conical in shape and projecting. As the car revolves the coal is discharged into this hopper. This as the revolution continues the conical shaped bottoms are inserted into a like number of buckets holding six tons of coal each. When the bottom of the hopper comes in contact with the bottom of the bucket, they automatically unlock, the sides expand to the sides of the bucket, thus liberating the coal. When the bridge returns to its original position the coal is left in the buckets without meeting with any violence. As the bridge lowers the car to its first position the sides of the hopper close, when it is ready to receive the next car, which is brought into position by the pushing device before mentioned. The empty car passing down an incline and through an automatic switch is returned to a track on the side. For the purpose of handling the coal three cars are provided, each holding six of the above described buckets. These are so spaced as to receive the projection from the hopper. These cars are moved by a wire rope, and as rapidly as one set is filled the cars are moved to one side, and another, containing six empty buckets, takes their place. For the purpose of placing the coal on board the vessel, two traveling cranes are used. These work independently of each other, and are provided with an engine and boiler and the necessary operating machinery. That portion of the crane in which the machinery is located travels on a railroad elevated above the tipping machinery. The other end of the crane travels on a single rail, running parallel with the dock. These cranes are provided with a ram, on the end of which there is suspended a block with four hooks, two of which are for the purpose of taking up a bucket, and the other two retain hold of the bottom, while the crane carries its load along the track opposite the hatch to be loaded, when the ram is run out horizontally to a point over the hatch. The bucket is then lowered to within a few inches of the floor or the pile of coal, then by lifting the inside set of hooks the bottom of the bucket is opened, the bucket is raised and the coal is allowed to remain in place. The bottom of the bucket closes automatically, and is returned to the car, when the operation is repeated. It will thus be seen that the coal is handled with the least possible breakage. The capacity of the machine is from 4,000 to 5,000 tons in 24 hours. A record of the one in use on the Toledo and Ohio Central railroad, as given by Mr. J. M. Ferris, the General Manager, shows that in half a dozen trials they loaded from 130 to 166 cars in 11 hours. The placing of the railroad car upon the

bridge, the operating of the hydraulic clamps, the turning of the tippie and the moving of the car with the buckets into place is performed by one man standing in the operator's house immediately overhead.

The Brown machine requires a greater number of men. These are said to be essential in order to handle the volume and prevent the breakage of the coal. It has been demonstrated that this machine can handle 500 tons per hour for a period of 10 hours. The tipping facilities have proven to possess a capacity of from 600 to 900 tons per hour. As now equipped, they require three engineers, three firemen, one car puller, two brakemen, four men to hook on the buckets, making a total expense of about \$27 per day. By allowing \$13 for interest and \$10 for incidentals, the total daily expenses are \$50, or one cent per ton.

Mr. William Thornburg, then superintendent of the Columbus, Sandusky and Hocking railroad designed a car unloader, which was erected on the company's docks at Sandusky early in the season of 1897. This machine, while practically different from any in use, embodied many of the striking features of several of the former machines. It consists of a cradle into which the loaded car is run, and after being securely clamped, the cradle and car are drawn up an incline, the mechanism of which is such that as the carriage ascends, it gradually revolves, discharging the coal in an easy manner into a large pan. When at the top of the incline, the elevation of which is sufficient to allow the coal to run by gravity into the vessel, the pan is at an angle which allows the coal to easily flow down a chute, the bottom of which is extended to nearly the floor. The end of the spout is provided with a wicket by which the coal can be diverted into different directions. The capacity of the machine is one car in four minutes, or about 15 cars per hour. The average capacity of each car is 27 tons. The machine cost about \$40,000, and requires from five to six hands to operate it. In speaking of the machine, Mr. R. A. Jaynes, General Freight Agent, says that it will unload more coal than they can supply.

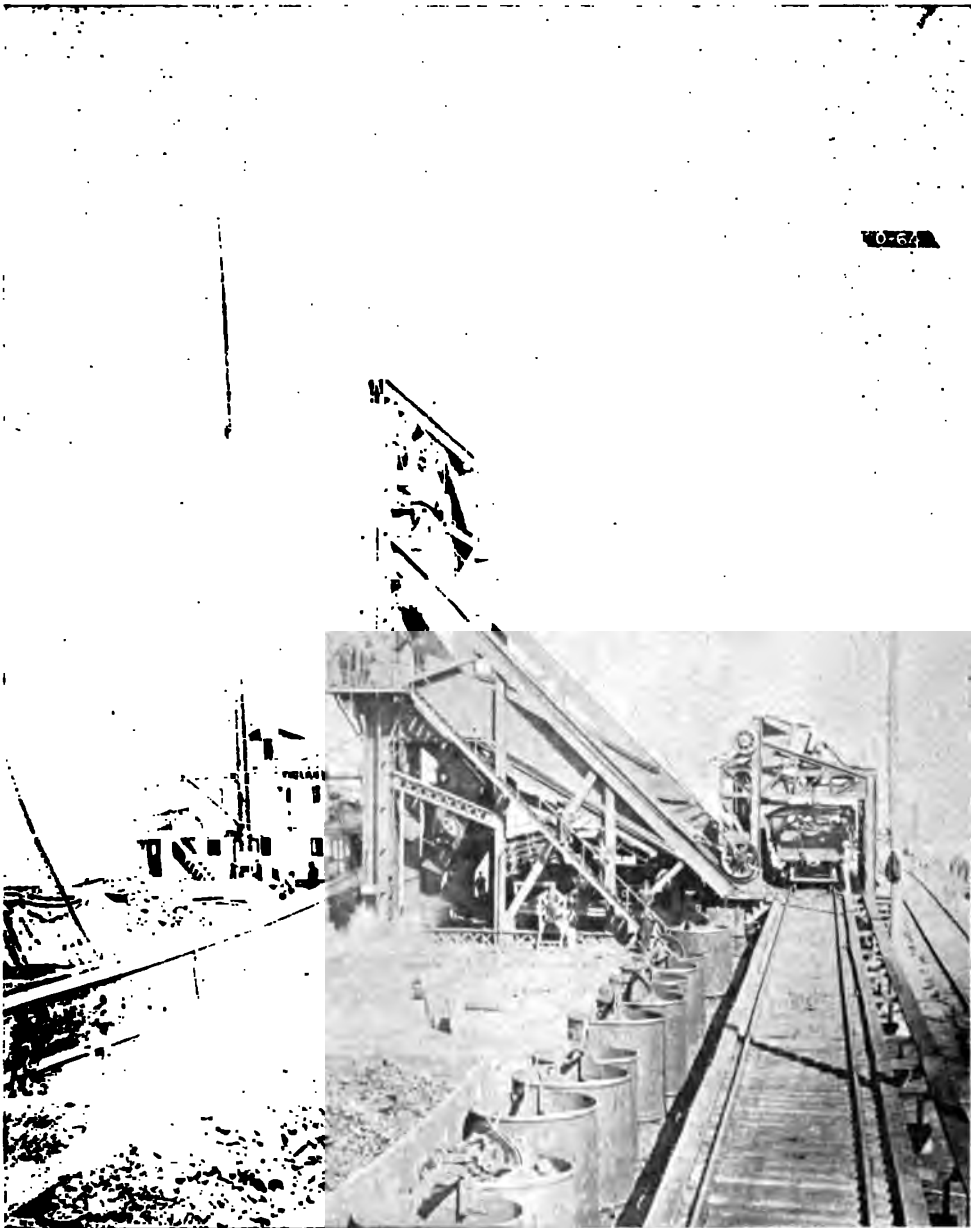
By a hasty review of the subject it will be seen that the first coal put on board of vessels was at a cost of 45 cents per ton. This prevailed from 1850 to 1855, when, by building a staging alongside the vessel on to which the coal was cast, the wheeling of the coal was avoided and a saving of 10 cents per ton was effected. About 1865 rail coal by being unloaded into chutes was placed on board vessels at a cost of about 20 cents per ton. During 1869 and 1870 the cast-

ing of coal from railroad cars to barrows and wheeled on to the deck, where, without care as to breakage, it was dumped into the hold of the vessel at a cost of 20 cents per ton. Not until 1879, by the use of the revolving derrick, was the aid of machinery brought into use. While it reduced the cost but little, it greatly increased the dock loading capacity. By the aid of improved derricks and increasing the size and improving the mechanism of the buckets, the cost was reduced to about 15 cents per ton, where it remained until the introduction of the car unloader by Edward Lindsley in 1893. This being the pioneer machine, the economy effected is not obtainable. The McMyler End Dumping Machine in use at Ashtabula and Fairport gives a record of 12 cars an hour, or about 3,000 tons of coal per day of 10 hours. This is accomplished by four men at a cost of \$10, allowing \$5 per day for interest, and a like amount for repairs. It will be seen that the coal is placed on board the vessel at two-thirds of a cent per ton.

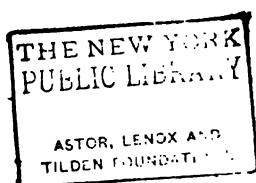
By returning to the McMyler side dumping machines erected at Lorain and Conneaut it is learned that with four hands it attains a capacity of 20 cars per hour. By allowing each \$2.50 per day of 10 hours each, \$10 for incidentals and \$8 for interest on the investment, it is found that it cost 56-100 of a cent per ton to place the coal on board the vessel.

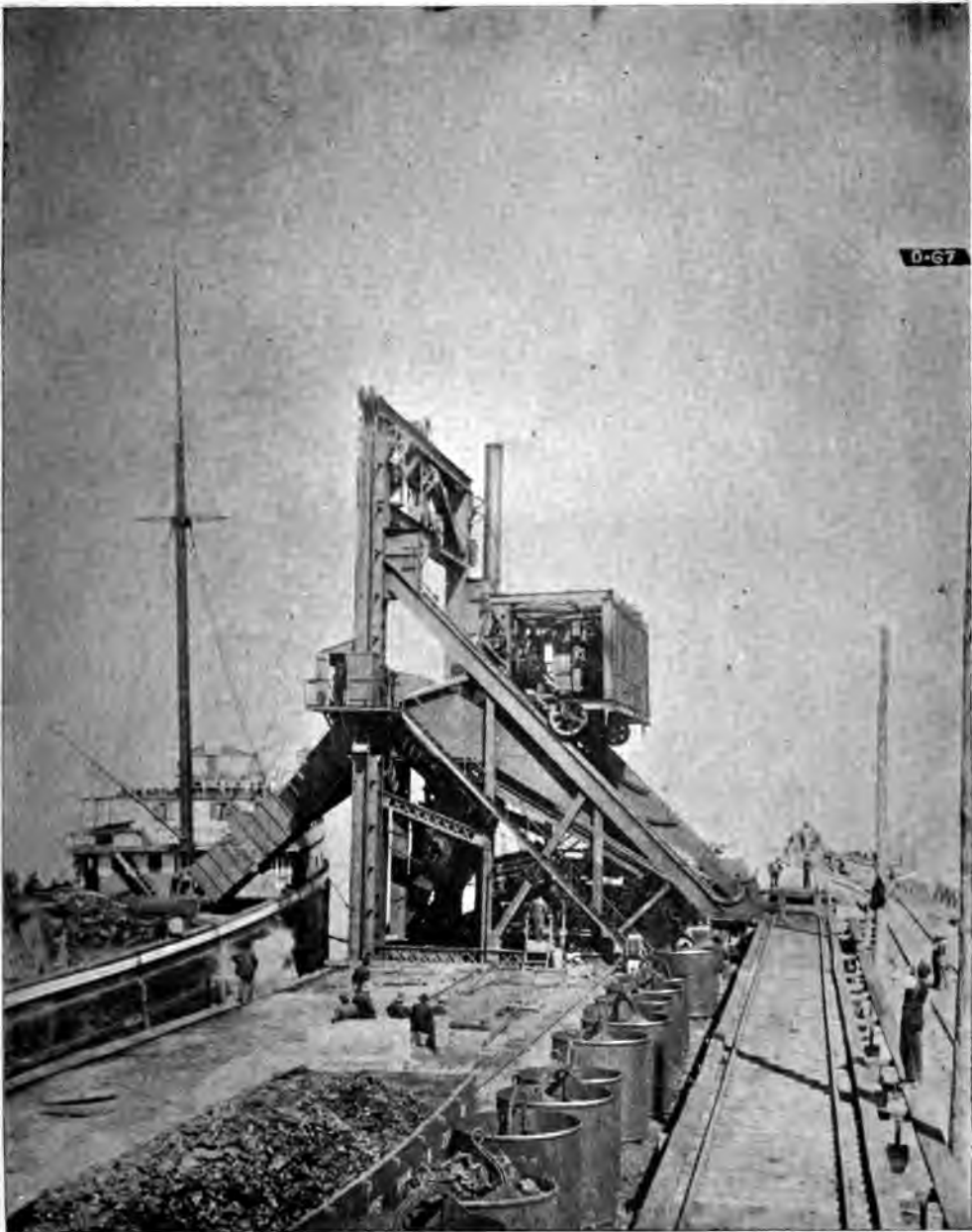
The Long machine is also a striking example of the great economy achieved by the machines. During the season of 1898, which began on the 18th of March and ended on December 16th, the machine was in operation 243 days. During this time it loaded 800,000 tons of coal, an average of 3,300 tons per day. The daily interest on the investment in this plant is about \$4.10. Three hands at \$7.50 and \$10 for incidentals makes a total of \$21.60 daily expenses, and amounts to an average of one cent per ton during the active season. While, if their record of 176 cars in eight and one-fourth hours, equaling 533 tons per hour, is taken, it is found to cost but four-tenths of a cent per ton to transfer the coal from the railroad cars into the vessel.

Early in the season of 1898 the Baltimore and Ohio railway at Sandusky and M. A. Hanna & Co. at Ashtabula erected an unloading plant, consisting of tracks elevated sufficiently to enable them to construct pockets underneath, into which, by the use of drop bottom or side dumping cars, the coal is unloaded. From these pockets it is drawn into buckets holding six tons each. The plant at Sandusky is provided with 16 of these patent drop bottom buckets,

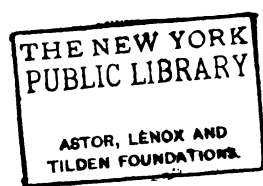


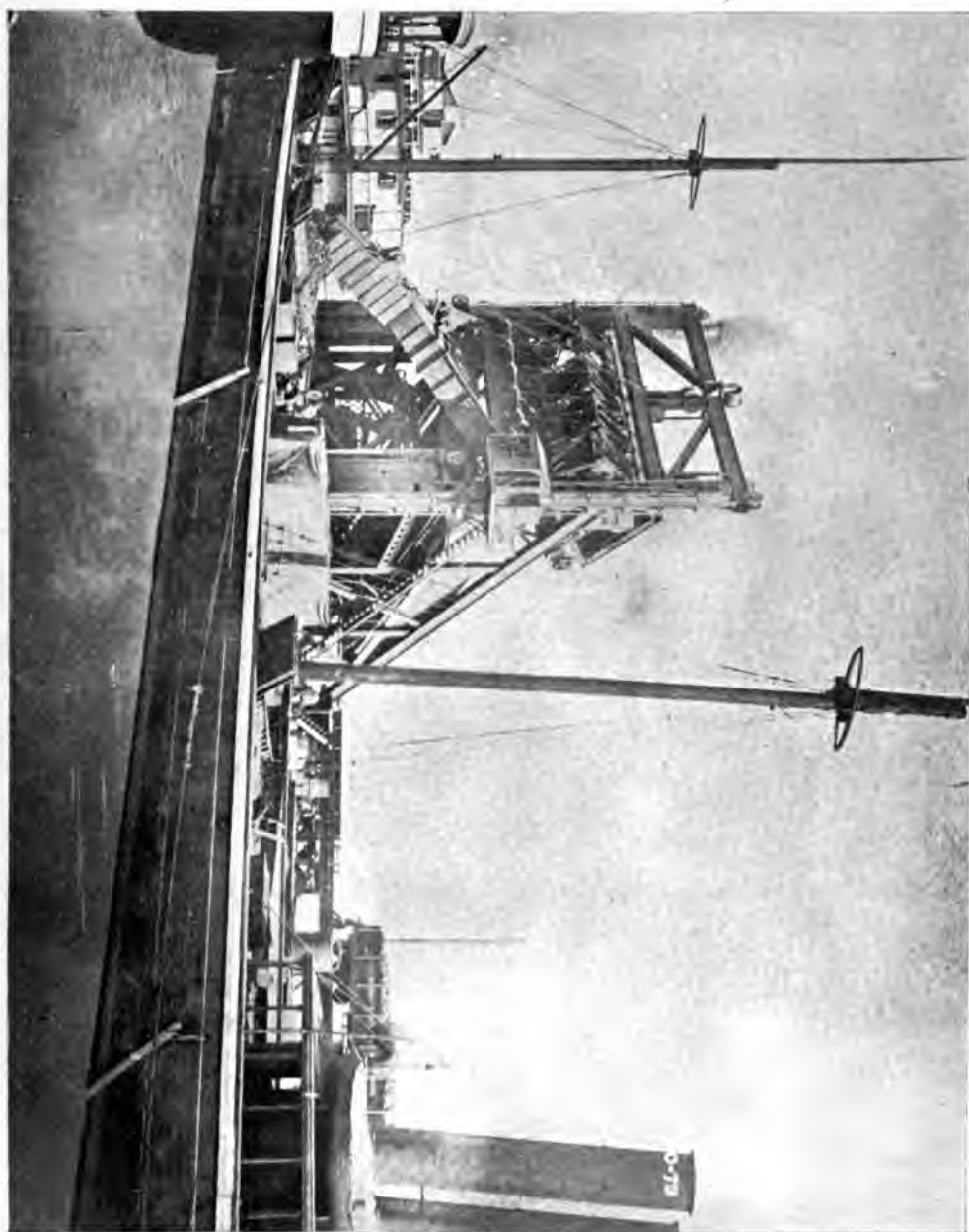
THORNBURGH MACHINE.
SHOWING CAR IN THE CRADLE BEFORE HOISTING.





**THORNBURGH MACHINE,
SHOWING THE CARRIAGE ASCENDING, THE CAR PARTIALLY DISCHARGED.**





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which are handled by means of a 10-ton revolving derrick of the latest design. This machine is said to be capable of handling 800 tons of coal per hour, and with very slight breakage. To operate them requires from 12 to 14 hands.

During the early days of the industry the mines were in operation during the winter, the coal being stocked on the wharves ready for the opening of navigation. The Cleveland and Mahoning railroad constructed a track on the bluff overlooking the Cuyahoga river. The slope was planked and the coal was thrown down the bank. Of late years little or no coal has been stocked, owing to the friability of the coal now handled and the small amount of profit in the trade. By the aid of the car unloader the emergency has been met and the trade prevented from suffering. During the year of 1898, 80 per cent. of the lake trade was loaded after the first day of October. This would have been an utter impossibility prior to their introduction.

It will be noted that the cost of handling the railroad trains and of trimming the coal in the vessel has been omitted in each calculation. This was done upon the assumption that the remarkable uniformity of tonnage of each machine would render the cost in each instance nearly the same, and to include these items would add confusion and unnecessary length to this article.

It can be safely said that the capacity of any of the above described machines is greatly in excess of the ability to trim the vessel to an advantage.

THE YEAR'S PRODUCTION OF COAL.

It is gratifying to know that, although the greater portion of the year was one of general lethargy in the coal trade, especially in the Hocking Valley and those portions of the State which rely upon the lake ports for their trade, that the coal production is greater than that of any of the four preceding years. Indeed, but twice in the State's history has the year's production been exceeded, namely, in 1892 and 1893. During the early part of the year and extending well into the lake season, there was little or no activity at the mines, which are most extensively operated to supply that branch of the coal trade. As the close of the season approached, the greatest energy prevailed, and owing to the revival in the manufacturing interests, the demand continued throughout the remainder of the year.

The following table has been designed to exhibit the amount of coal which originated in the several coal producing counties of the State, and from it it is found that the year's total output equals 14,068,135 tons, an increase of 1,609,318 tons as compared with the year of 1897.

It will also be observed that this table exhibits the different grades into which the coal is subdivided for the market. By a comparison of the footings with those of the preceding year it is found that the lump coal amounted to 10,326,571 tons, a gain of 1,186,662 tons. The amount of nut coal produced equaled 1,635,253 tons as compared with 1,485,524 tons in 1897. This represents a gain of 149,729 tons. The pea or slack returned equals 2,096,311 tons, which is a gain of 573,922 tons, as compared with the preceding year.

In point of production the 10 leading counties are: Jackson, Perry, Athens, Hocking, Guernsey, Belmont, Tuscarawas, Columbiana, Stark and Jefferson, which appear in the order named. The first six are producers of over a million tons each. Perry county, which headed the list for more than a decade up to 1894, when it gave way to Jackson for two years, again assumed the lead in 1896. During 1897 and 1898 it has again been forced to yield to Jackson. Hocking county, which stood third during 1897, gave way to Athens and dropped back to the fourth position during the year that has just closed. Belmont, which was fifth, has exchanged places with Guernsey, and Stark county has moved back from the seventh to the ninth position. Jefferson moved from the eighth to the tenth place, while Tuscarawas has advanced from the tenth to the seventh. Columbiana county has advanced from its former position of ninth to the eighth in the column. These 10 counties furnish 12,261,290 tons, an amount equaling 87 2-10 per cent. of the year's output. This is a gain of one per cent. over the preceding year and of five and one-half per cent. as compared with 1896.

The "Hocking Valley," as it is known to the trade, comprises the counties of Athens, Hocking and Perry, and produced 4,577,818 tons, an increase of 447,772 tons, as compared with the previous year. The joint production represents 32 1/2 per cent. of the year's output as compared with 33 2-10 per cent. during 1897, 34 2-10 per cent. in 1896, 34 per cent. in 1895, 36 7-10 per cent. in 1894, 38 4-10 per cent. in 1893 and 37 7-10 per cent in 1892.

From the above comparison it will be seen that with the fierce competition this district is steadily losing its trade in the northwest,

where its product is largely marketed. Of the three counties, which it comprises, Perry produced 89 per cent. as compared with 85 per cent. in 1897, 88 4-10 per cent. in 1896 and 1895, 88 4-10 per cent. in 1894, 88 1-10 per cent. in 1893 and 87 3-10 per cent in 1892.

For the purpose of more clearly exhibiting the gain and loss in the several coal producing counties, as compared with the year of 1897, the second table has been prepared, from which it will be seen that the gains amount to 1,997,316 tons, which occurred in 17 counties. Of this, the most prominent gains occur in the counties of Perry, Guernsey, Belmont, Athens, Tuscarawas, Jackson and Columbiana in the order named. The first two furnished over 300,000 tons, the next three over 200,000, and the last two over 150,000 tons each. These seven counties furnished 84 per cent. of the year's increase.

Six of the 17 counties, which reported gains this year, also returned gains in 1897. Of these, Columbiana and Tuscarawas are the only ones of prominence. Ten of the counties which returned gains during the past year reported losses during the one preceding.

Losses are reported as having occurred in 13 counties during the year. This corresponds with the number returned during the preceding year. Hocking and Muskingum counties are the most prominent, and furnished 55 per cent. of the year's losses. Of the 13 counties, Medina, Meigs and Muskingum also returned losses during the two previous years.

TABLE SHOWING THE COAL PRODUCTION OF THE STATE BY
COUNTIES DURING THE YEAR 1898.

Counties.	Tonnage for 1898.			Total 1898.	Rank in production.
	Lump.	Nut.	Pea and slack.		
Athens	1,204,355	109,570	219,263	1,533,188	3
Belmont	778,648	102,542	227,377	1,108,567	6
Carroll	204,575	24,690	32,270	261,535	12
Columbiana	574,258	150,147	161,648	886,053	8
Coshocton	225,388	48,269	69,247	342,904	11
Gallia	13,049	3,589	753	17,391	25
Guernsey	866,020	136,494	174,010	1,176,524	5
Harrison	28,742	4,568	4,834	38,144	23
Holmes	9,690	3,730	2,241	15,661	26
Hocking	1,011,052	174,739	68,949	1,254,740	4
Jackson	1,302,989	232,801	269,002	1,804,792	1
Jefferson	554,665	104,203	170,658	829,526	10
Lawrence	57,655	6,531	4,649	68,835	19
Mahoning	50,093	11,580	13,476	75,149	18
Medina	97,522	15,064	35,128	147,714	15
Meigs	161,541	3,665	28,129	193,335	14
Morgan	17,640	2,598	6,702	26,940	24
Monroe	4,043	8	400	4,451	29
Muskingum	178,643	25,499	46,576	250,718	13
Noble	47,616	5,969	9,327	62,912	21
Perry	1,416,747	165,773	207,370	1,789,890	2
Portage	58,666	8,983	8,202	75,851	17
Scioto	11,890	250		12,140	27
Stark	647,807	72,869	146,421	867,097	9
Summit	51,038	4,687	9,653	65,378	20
Trumbull	6,679	371	421	7,471	28
Tuscarawas	644,025	145,340	161,548	950,913	7
Vinton	65,620	7,776	11,748	85,144	16
Washington	2,718	40	876	3,634	30
Wayne	33,257	2,908	5,433	41,598	22
Totals	10,326,571	1,635,253	2,096,311	14,058,135	.....

TABLE SHOWING THE COAL TONNAGE OF THE STATE FOR 1898
AS COMPARED WITH 1897.

Counties.	1897.	1898.	Gain.	Loss.
Athens.....	1,299,454	1,533,188	233,734	
Belmont.....	905,378	1,168,567	263,189	
Carroll.....	162,537	261,535	98,998	
Columbiana.....	735,041	886,053	151,012	
Coshocton.....	326,981	342,904	15,923	
Gallia.....	15,704	17,391	1,687	
Guernsey.....	861,776	1,176,524	314,748	
Harrison.....	28,159	38,144	9,985	
Holmes.....	19,313	15,601		3,712
Hocking.....	1,381,414	1,254,740		126,674
Jackson.....	1,649,493	1,804,792	155,299	
Jefferson.....	744,790	829,526	84,736	
Lawrence.....	124,448	68,835		55,613
Mahoning.....	92,283	75,149		17,134
Medina.....	159,987	147,714		12,273
Meigs.....	203,861	193,335		10,526
Morgan.....	22,165	26,940	4,775	
Monroe.....	2,807	4,451	1,644	
Muskingum.....	339,660	250,718		88,942
Noble.....	63,967	62,912		1,055
Perry.....	1,449,178	1,789,890	340,712	
Portage.....	79,245	75,851		3,394
Scioto.....	17,119	12,140		4,979
Stark.....	777,042	867,097	90,055	
Summit.....	83,238	65,378		17,860
Trumbull.....	10,838	7,471		3,367
Tuscarawas.....	730,473	950,913	220,440	
Vinton.....	75,445	85,144	9,699	
Washington.....	2,974	3,634	660	
Wayne.....	84,052	41,598		42,454
Totals.....	12,448,822	14,058,135	1,997,296	387,983
Net gain.....				1,609,313

TABLE SHOWING THE COAL OUTPUT OF THE STATE FROM 1872 TO 1898 INCLUSIVE.

Year.	Output.	Gain.	Loss.
1872	5,313,294		
1873	4,550,028		76,526
1874	3,267,585		128,224
1875	4,864,259	1,596,674	
1876	3,500,000		1,364,259
1877	5,250,000	1,750,000	
1878	5,500,000	250,000	
1879	6,000,000	500,000	
1880	7,000,000	1,000,000	
1881	8,225,000	1,225,000	
1882	9,450,000	1,225,000	
1883	8,229,429		1,220,571
1884	7,650,062		579,367
1885	7,816,179	166,117	
1886	8,435,211	619,032	
1887	10,301,708	1,866,479	
1888	10,910,946	613,338	
1889	10,907,385		3,561
1890	11,788,859	881,474	
1891	13,050,187	1,261,328	
1892	14,599,908	1,549,721	
1893	14,828,097	228,189	
1894	11,910,219		2,917,878
1895	13,683,879	1,773,660	
1896	12,912,608		771,271
1897	12,448,822		463,786
1898	14,058,155	1,609,333	

COAL MINED BY MACHINERY DURING THE YEAR.

The returns denote a period of great activity at the mines in which the coal is produced by mining machines. By an examination of the accompanying table it will be seen that the year's production of machine mined coal equaled 5,252,598 tons, which is a gain over the preceding year of 1,146,474 tons, and is the greatest by that amount in the State's history. The past year's increase equals the entire amount so produced during the year of 1890, and is nearly a quarter of a million tons in excess of the coal mined by machines in 1889. The amount of lump coal, which is given at 4,114,448 tons, is greater than the entire output during any year of which there is a record. The returns of lump coal for several years has been found to average 78 per cent. of the total production:

The list of counties remains the same as during the year of 1897. Since the application of electricity to mining, machines have been installed in 16 counties. In Coshocton, Summit, Muskingum and Tuscarawas they failed to work satisfactorily, and their use has been discontinued.

In the reports of the department prior to 1897 the time worked was reckoned by the week. It has been learned that in most instances six days have been counted as a week, but in some cases a week was computed on a basis of five and a half days, thus making it necessary in order to secure accurate results to adopt a more uniform standard. The introduction of the Saturday half-holiday, which was adopted in portions of the State during 1896 and 1897, followed by the acceptance of the eight-hour working day during the year that has just closed, has made it necessary to reckon the time that the mines were in operation by the day.

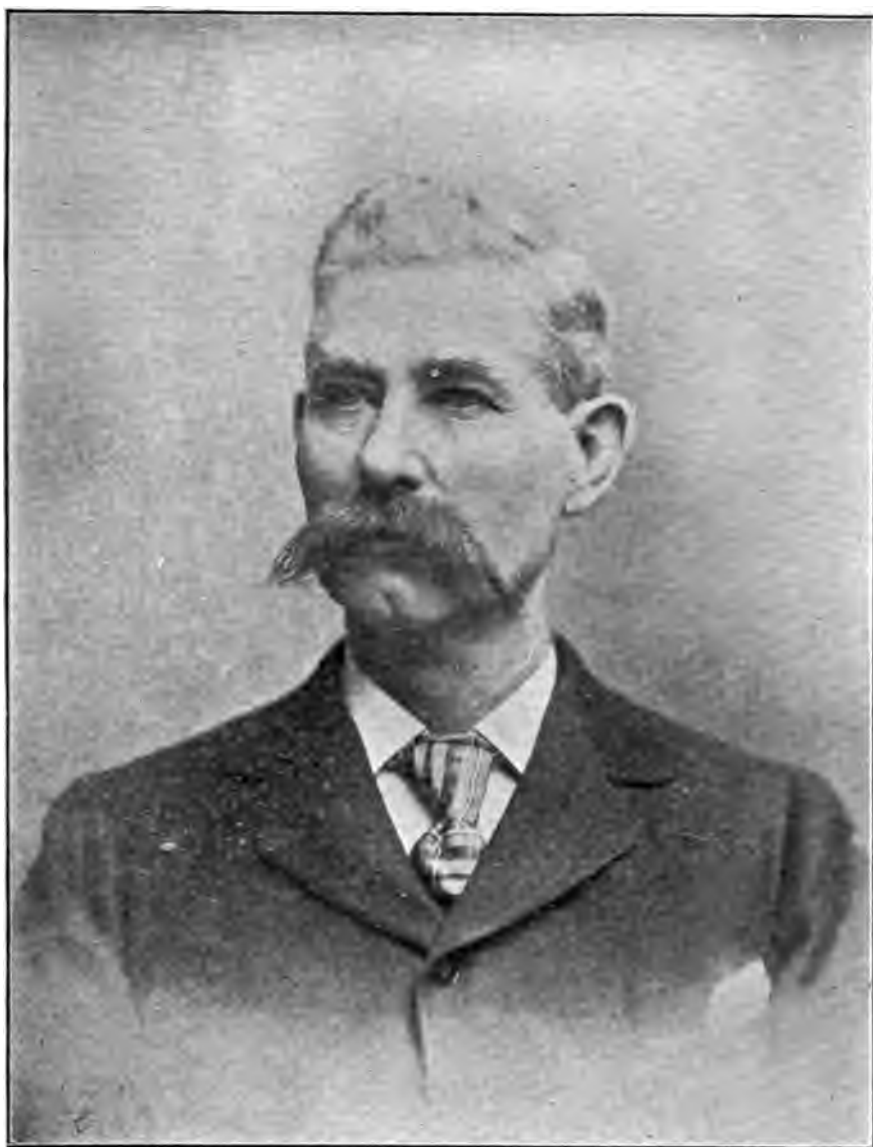
In comparing the year's production by counties with the preceding year, it is found that gains occurred in all except Hocking and Portage. The largest production is returned from the counties of Athens, Hocking, Perry and Guernsey in the order named. In the three former counties, which are familiar to the trade as the "Hocking Valley," 86 1-10 per cent. of the year's output originated as compared with 78 per cent. in 1897. It is a decrease of 10 per cent., when compared with 1894 and 1896, and a loss of seven per cent. when compared with 1895. This enormous loss in percentage as compared with earlier years of machine mining in the Valley is indicative of the fact that the coal fields of other counties are equally well adapted to the uses of mining machines.

TABLE SHOWING THE AMOUNT OF COAL MINED BY MACHINERY, THE TIME WORKED, AND THE NUMBER OF MEN EMPLOYED IN MACHINE MINING.

Counties.	Days worked.	Hands operating machines.	Hands following machines.	Lump.	Nut.	Pea and slack.	Total.
Athens.....	150	238	1,842	1,025,608	88,994	191,568	1,306,170
Belmont.....	88	16	26	18,745	2,272	5,763	26,780
Carroll.....	220	24	65	92,224		3,000	95,224
Columbiana.....	245	56	220	205,790	53,039	59,629	318,458
Guernsey.....	282	110	970	736,099	104,701	135,197	975,997
Hocking.....	191	178	1,489	992,086	169,432	63,936	1,225,454
Jackson.....	232	30	114	129,923	11,948	9,978	151,849
Jefferson.....	126	24	149	69,985	13,744	22,974	106,703
Meigs.....	80	2		3,000			3,000
Perry.....	114	110	969	825,188	76,674	117,219	1,019,081
Portage.....	253	3	15	10,000	1,594	2,013	13,607
Stark.....	59	14	28	5,800	2,237	2,238	10,275
Totals.....	2,050	805	5,887	4,114,448	524,635	613,515	5,252,598
Average..	171						

TABLE SHOWING THE ANNUAL PRODUCTION OF MACHINE MINED COAL SINCE THE INTRODUCTION OF ELECTRICITY INTO THE MINES OF THE STATE.

Years.	Output.	Gain.	Loss.
1889.....	900,000		
1890.....	1,148,449	248,449	
1891.....	1,654,081	505,632	
1892.....	2,239,080	584,999	
1893.....	2,553,074	313,994	
1894.....	2,555,466	2,392	
1895.....	3,120,456	564,990	
1896.....	3,368,349	247,893	
1897.....	4,106,124	737,775	
1898.....	5,252,598	1,146,474	



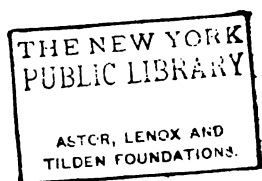
FRANCIS M. LECHNER,
THE INVENTOR OF THE ROTARY BAR AND CHAIN MINING MACHINES. THE
FIRST OF THEIR TYPE TO CUT COAL WITH ECONOMY.

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ASTOR, LENOX AND
TILDEN FOUNDATIONS.

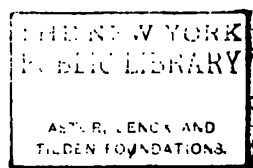


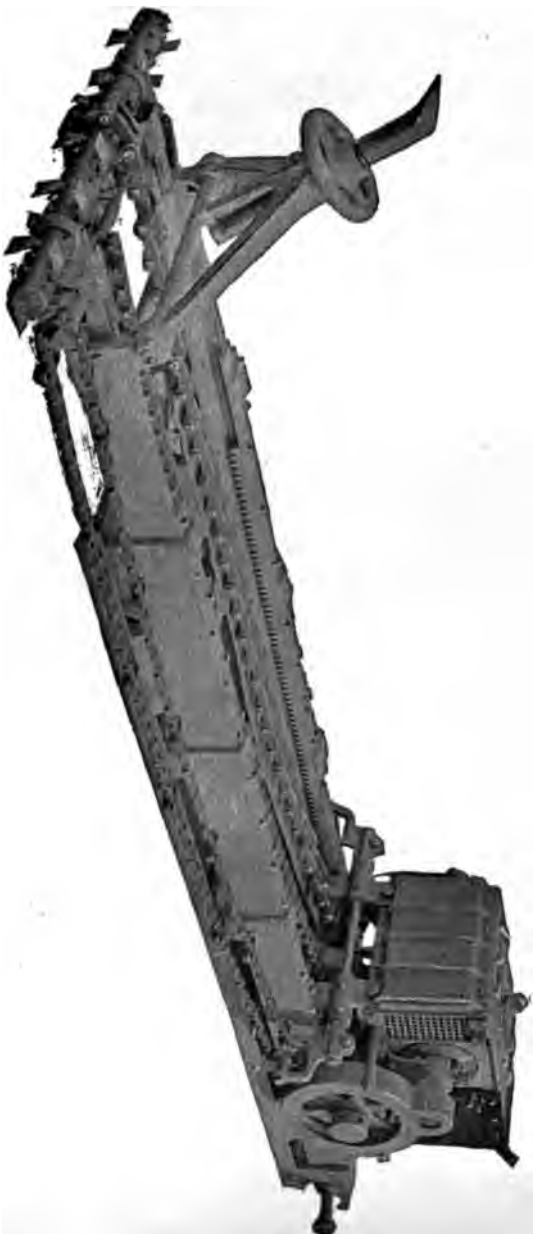
JEFFREY AIR ROTARY BAR MINING MACHINE.
AN EARLY TYPE. NOW OBSOLETE.





JEFFREY AIR CHAIN MACHINE.





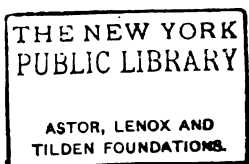
JEFFREY ELECTRIC ROTARY-BAR MACHINE.
OBSOLETE TYPE. FIRST ELECTRIC COAL CUTTER BUILT.

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ASTOR, LENOX AND
TILDEN FOUNDATIONS.

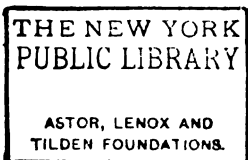
JEFFREY 17-A ELECTRIC CHAIN MACHINE.

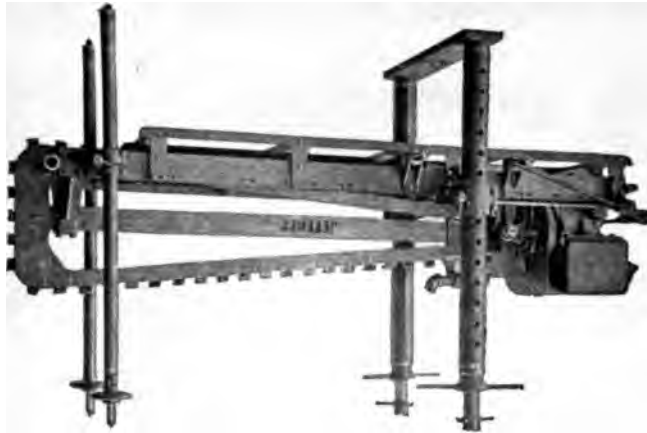




JEFFREY 10-A ELECTRIC CHAIN MACHINE.
FOR THIN VEINS.



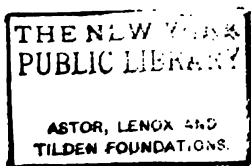




**JEFFREY ELECTRIC SHEARING MACHINE,
READY FOR TOP CUT.**



JEFFREY 4-TON ELECTRIC MOTOR.



Machine labor in mining is probably the most important feature of the industry, and a brief recount of its history might not be out of place in this report. From an article by Mr. E. W. Parker, of the United States Geological Survey, it is learned that the first patent for a mining machine was issued to Elisha Simpkins, of Alleghany, Pa., in 1858. Since that time no less than 468 patents have been issued.

The first mining machine introduced into Ohio was the rotary bar, the invention of Francis M. Lechner, of Columbus, Ohio. The patent was issued to him on January 25, 1876. The first machine was built by the Lechner Mining Machine Company and was installed in the mine of the Straitsville Central Mining Company in Perry county in July of 1877. The next installation was at the Longstreth mines in Hocking in May of 1878. These were the first cutter bar breast machines introduced into this State, and it is believed the first in the Appalachian coal field. This company continued to manufacture mining machines until 1882, when it was succeeded by the Lechner Manufacturing Company. In 1887 it became known as the Jeffrey Manufacturing Company, to whom Mr. Lechner assigned his patents.

During 1884 Benjamin A. Legg secured a patent which effected several improvements on the cutter bar machine. This also became the property of the Jeffrey Manufacturing Company, who continued to add patents secured by H. B. Dierdorff and others to their machine. The early machines were operated by compressed air, the cylinders sitting vertically. Later the position of the cylinder was changed to the horizontal, and gradually the machine was strengthened and improved until 1889, when the electric motor in a large measure displaced the compressed air engines.

It was on December 17, 1888, that the Sprague Electric Railroad Company, of New York, entered into a contract with Mr. Wm. Job, manager of the Ellsworth & Morris Coal Company in Hocking county, to equip their Brush Fork Mine No. 2 with two 75 H. P. dynamos, one 15 H. P. motor car, six 15 H. P. electric mining machines and three one H. P. motor drills, binding themselves to have the plant completed by July 15, 1889. At that time the Sprague Company and, in fact, no other concern was manufacturing economical breast machines except the Jeffrey people. After several months of experiments the Sprague Company sent their electricians to the works of the Jeffrey Company. It is said that after many vexatious failures the work was given up and that portion of

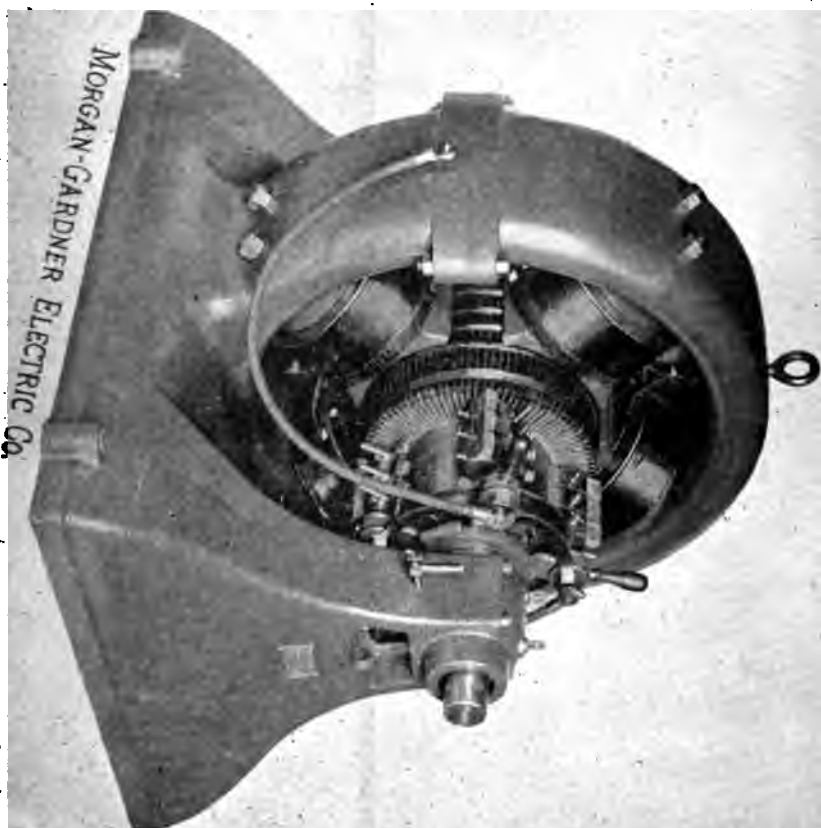
the contract with the Ellsworth & Morris people was compromised. The Jeffrey Manufacturing Company then went forward and succeeded in attaching an electric motor to their rotary bar machine, one of which was sent to the Jobs mine in Hocking and another to the Whip-poor-will mine in Perry county. As to which machine was the first to cut coal there is some dispute. The year closed with two electric mining machines in the field. From that time various installations were made until the close of the year of 1891, when there were 18 Jeffrey electric machines in the State.

During 1892 the number in use in the State was increased to 25, and at the close of 1893, 39 were being operated.

During these years Mr. Lechner was engaged in designing and perfecting what is now known as the chain machine. He completed the first one in the early winter of 1890, and it was sent to Shawmut in Elk county, Pa., where the writer witnessed its experimental work. During the year of 1891, three of these machines were introduced into the Crescent mine in Athens county. This machine was afterwards disposed of to the Independent or Link Belt Machinery Company, of Chicago, Ill. Another of more perfect design was constructed by him during 1894, and this was disposed of to the Jeffrey Manufacturing Company. From it has developed the present Jeffrey chain machine, which is designed for use in both the thick and the thin veins of coal. This type of machine has now become standard, and is used in every coal producing country in the world. The facilities for their manufacture have gradually increased until at this time the company is capable of turning out a mining machine each working day of the year.

Within the past two years this company has designed and placed upon the market an electric chain shearing machine. So far as the writer is aware none of them have been adopted by the mine operators of this State. They are of especial value in veins where the end joints are not well defined, or where they shoot the coal from the solid. At the close of this year there were 31 of the Jeffrey air machines and 91 of their electric machines in use in the mines of Ohio.

The Link Belt Machinery Company, of Chicago, Ill., entered the market with an electric chain breast machine during the year of 1894. The first one was installed in the Murray City No. 29 mine in Hocking county. During the next year another was introduced into the Congo mine in Perry. The one at Murray City is the only one reported during 1896. It, with the two that were introduced at Long Run mine in Jefferson county, embraced the company's repre-



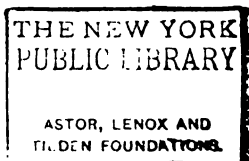


FIGURE 3.



THE "LINK BELT" ELECTRIC CHAIN BREAST MACHINE.

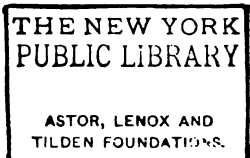
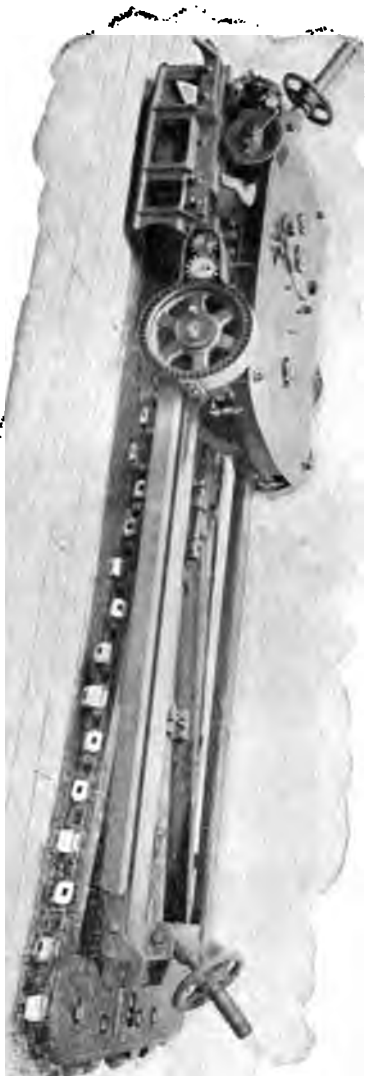
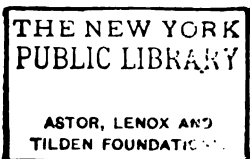
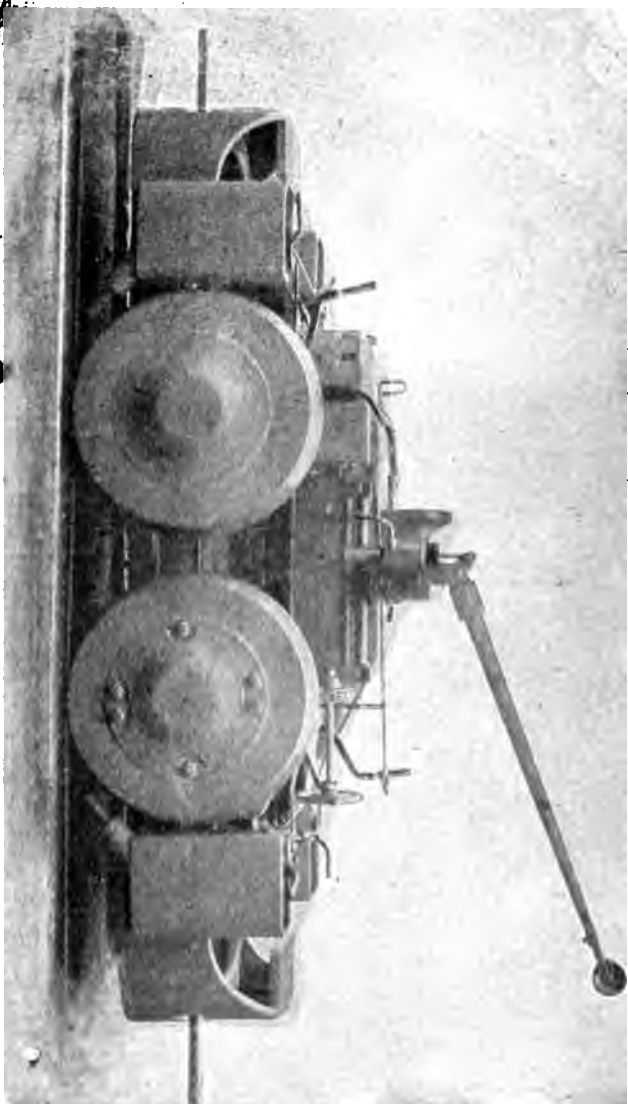


FIGURE 4.

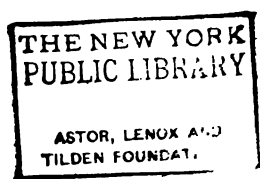


"LINK BELT" ELECTRIC "LOW" CHAIN MACHINE.



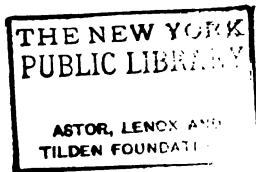


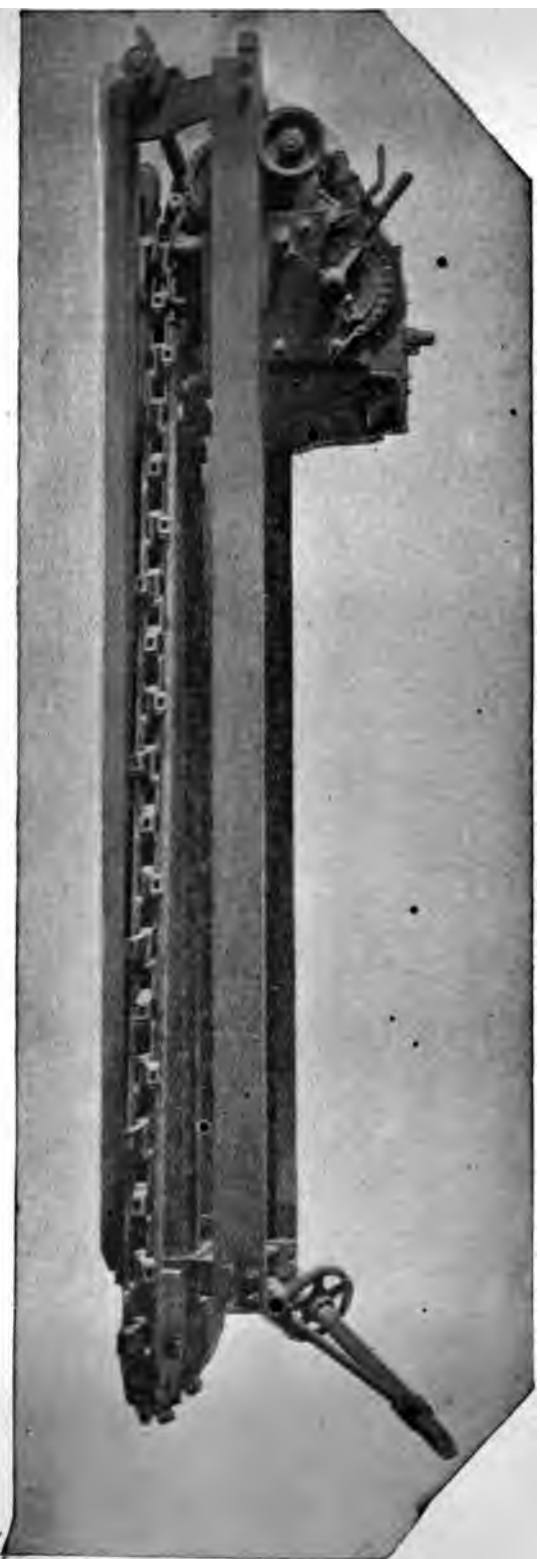
"INDEPENDENT" 60 H. P. 4-WHEEL LOCOMOTIVE.
MANUFACTURED BY THE LINK BELT MACHINERY COMPANY, CHICAGO, U. S. A.



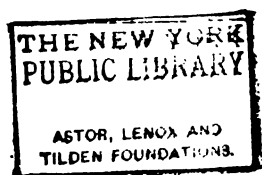


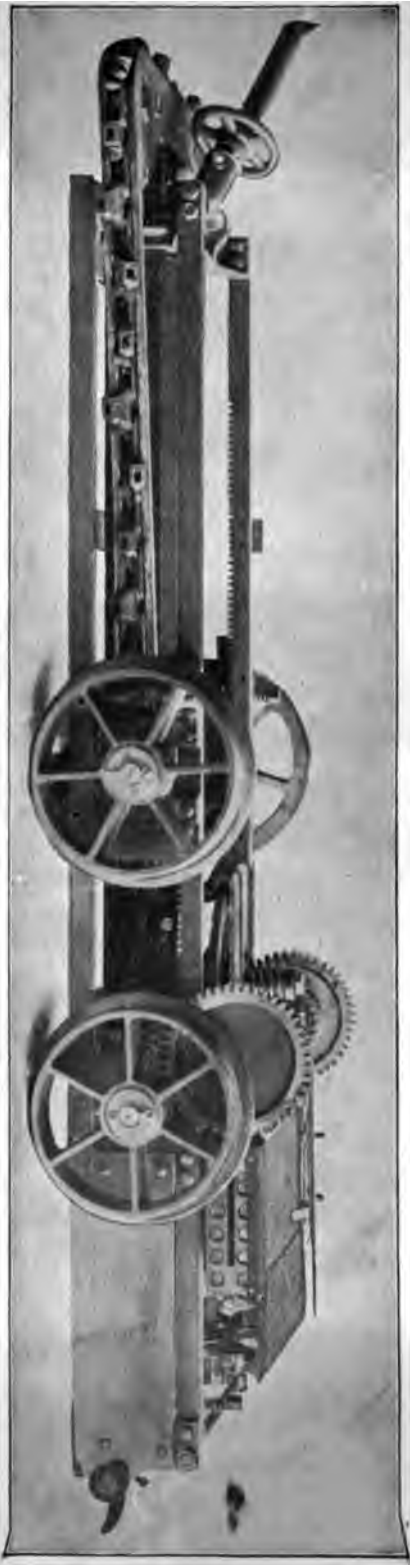
"LINK-BELT" 4-WHEEL LOCOMOTIVE, 2-MOTOR TYPE.
BUILT BY THE LINK-BELT MACHINERY COMPANY, CHICAGO, U. S. A.



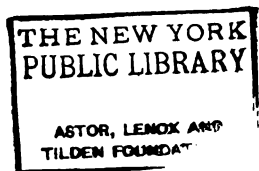


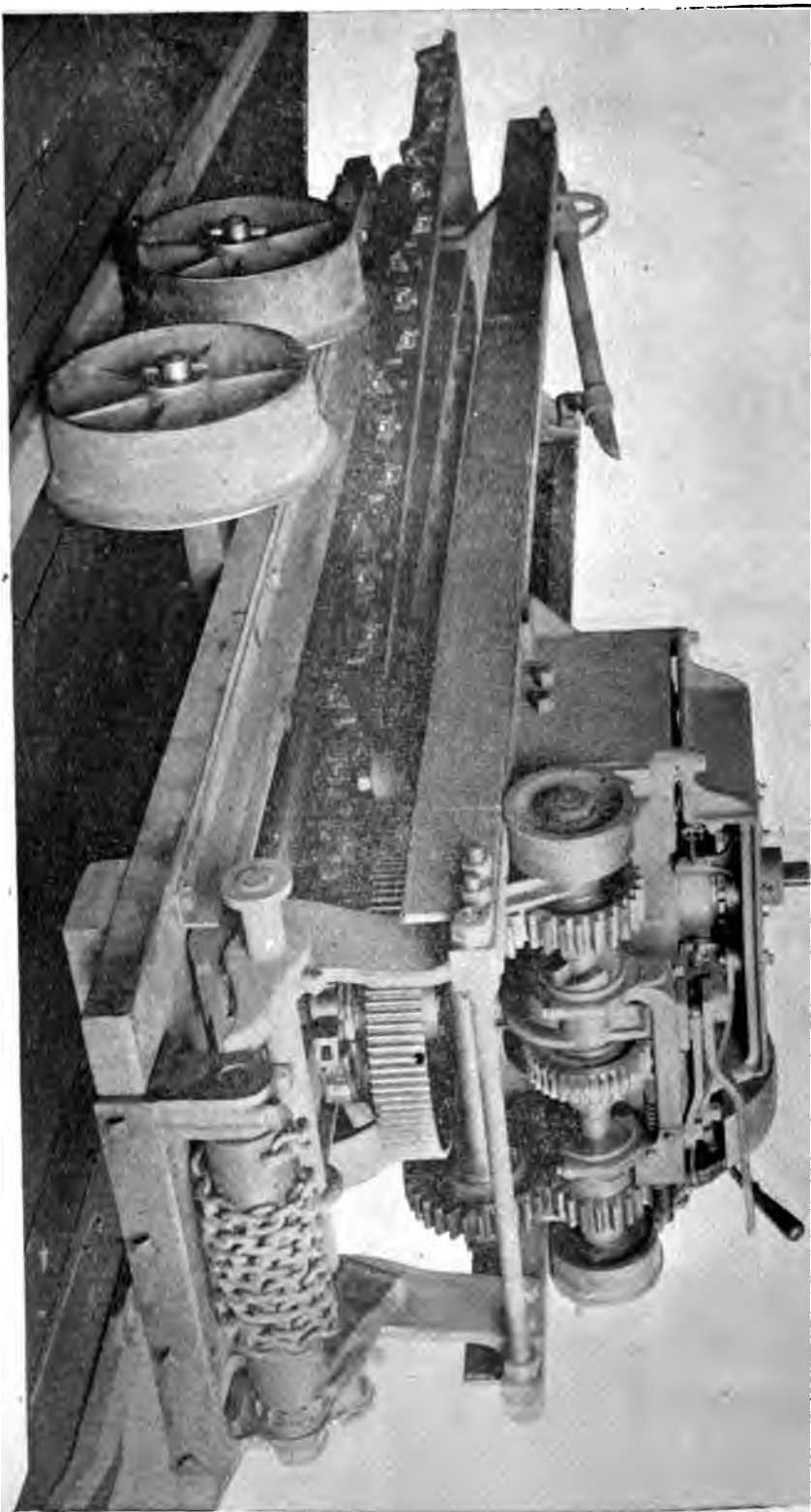
MORGAN-GARDNER CHAIN MACHINE.
UNDERCUTS FROM FIVE TO SEVEN FEET.



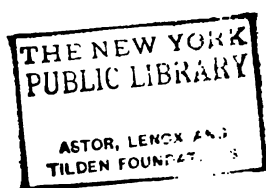


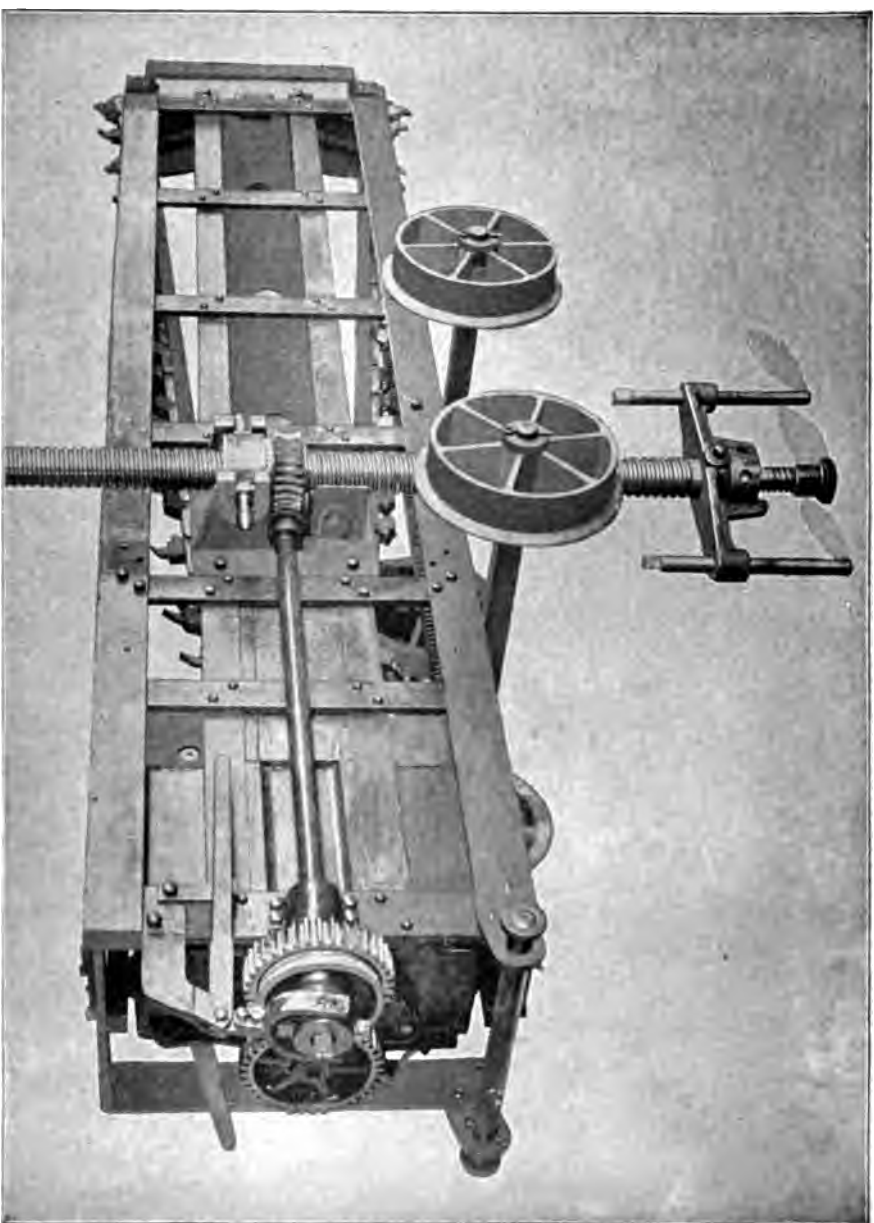
MORGAN-GARDNER LOW VEIN MACHINE.
SELF-PROPELLING.





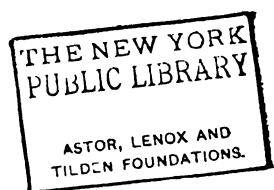
MORGAN-GARDNER CHAIN MACHINE. LOADED. READY TO MOVE.

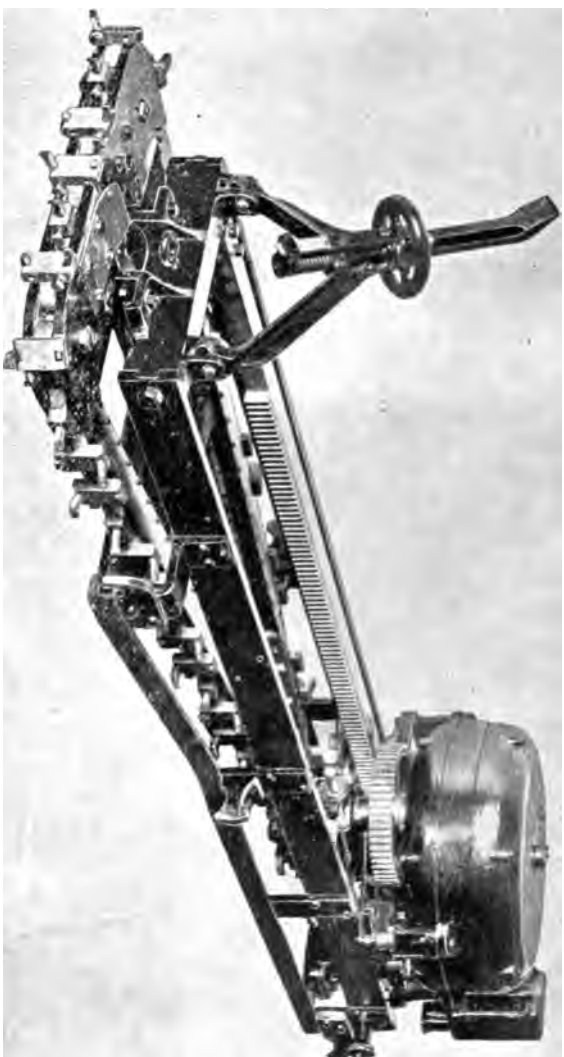




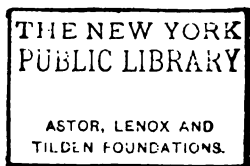
MORGAN-GARDNER SHEARING MACHINE.

THIS MACHINE IS EQUIPPED WITH A POWER RAISING DEVICE, AND IS RAISED AND LOWERED BY ITS OWN MOTOR, AND CAN BE SET READY FOR CUTTING IN A FEW MINUTES.





GENERAL ELECTRIC MACHINE.



sentation in the State at the close of the year of 1897. One reported at Daleton, in Athens, and one at the Tom Corwin mine, in Jackson county, comprise the list of the year that has just closed. The present machine differs materially from the former in the style and shape of the motor. It also has rollers under the heavy end, which greatly facilitates moving it on the coal floor. The low running chain permits the under cutting to be made close to the bottom of the coal measures, thus avoiding the necessity of taking up bottom coal after the under bearing has been made. It has a number of other improvements in regard to the position of the rear jack, a simple mechanism for feeding the machine, and other features, which are a great improvement over the original machine first introduced by this company.

About the time the Link Belt Machinery Company entered the field, the Morgan-Gardner Machine Company, also of Chicago, introduced a chain breast machine similar to the one last described. This was installed in the Walhounding mine in Guernsey county during the year of 1894, making four in all in use at the close of that year. During the next year they secured five more. At the end of 1895 one had been placed in each of the Hiawatha and Crescent mines and two at Oakdale in Athens county and two at the Snake Hollow mine in Hocking, making a total of 15 machines of this type in use in the State. During 1896 five were installed in the Phoenix mine, four in the No. 16, one each in Maple Hill and Springfield, two at the Black Diamond and three at Oakdale, all in Athens county, one at the Central and an additional one at the Walhounding mine in Guernsey county, one at Coalgate and three at Cawthorn in Hocking county and one at Rock Run in Perry, making a total of 42 machines in use in the State at the close of that year. The next year the number was increased to 67, and the returns for the year that has just closed show that 91 machines of this make are being operated in the mines of Ohio.

During the year 1896 the General Electric Company, of Schenectady, New York, entered the market with a chain breast machine, much similar in construction to the two just described, the chief difference being the use of the induction motor, the power being furnished by an alternating current, known as the "Three Phase System." Four of these machines were installed in the Trail Run and Hartford mines in Guernsey county and two at the Hutson No. 4 mine in Portage. For some reason or other the manufacturers have not pushed the claims for their machine upon the mining public.

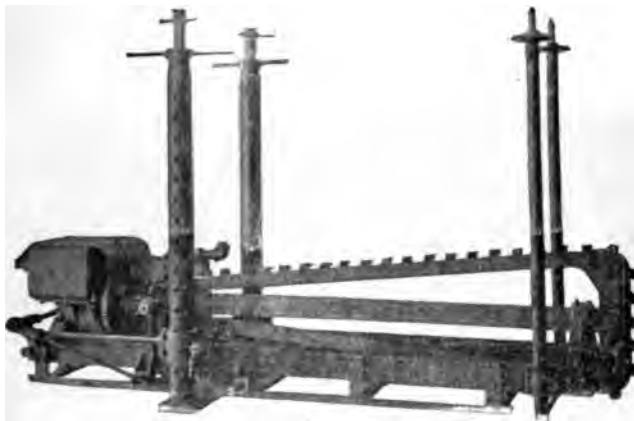
MACHINES OF THE PROJECTILE TYPE.

The patent for the first machine of this type was issued on December 25, 1877, to J. W. Harrison, and the first machine offered to the market was in the spring of 1880. It will thus be seen that it was about 20 years from the date of issuing the first patent until the introduction of the first machine. This machine is undoubtedly the pioneer of the pick type. The first one introduced into the State of Ohio was in the mine of W. B. Brooks, near Nelsonville, in Athens county in the spring of 1881. Later, this machine was installed in Rend's No. 3 mine, near Rendville, in Perry county. For many years this machine has been manufactured by George D. Whitcomb, of Chicago, whose company, since its formation, is said to have built 1,700 of these machines. They, like all others, have been greatly improved during the 19 years of their existence, but, notwithstanding this fact, some of the machines manufactured during 1880 and 1881 are still in use, and it is said they are giving good satisfaction. At the end of the year of 1891, when the first record of machine mines was kept, there were 33 machines of this type in use in this State. In 1892 the number was increased to 39, in 1893 to 42 and in 1894 to 49. During 1895 the number reported had decreased to 29, and in 1896 there was one less. In 1897 there were but 27, and at the close of 1898 we find but 19 in use in the mines of the State.

The Ingersoll-Sergeant machine is similar in its construction to the Harrison in that it is of the reciprocating type. When they were first manufactured, the writer cannot say, but the first record the department has shows that nine were in use at the close of the year of 1891. While the outward appearance of the machine is the same, great improvements have been made in the interior arrangements. The steel cushion in the cylinder head has given way to an air cushion, and the valve motion has been so improved that if the machine runner misses a stroke it is not followed by disastrous consequences either to the machine or to the machine runner. It is said that these improvements have enabled the machine runner to increase the number of strokes from 180 or 190 to 225 and 240 per minute. Owing to the automatic checking of the air, when the machine man misses a stroke and its immediate release upon striking the coal again, the machine runner is not intimidated, and therefor allows the machine to take the full force of air. Owing to these improvements it is claimed that the machine is able to undercut coal



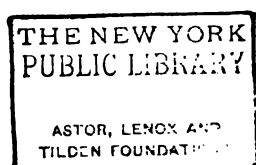
**JEFFREY ELECTRIC SHEARING MACHINE,
READY TO MOVE.**



**JEFFREY SHEARING MACHINE
READY FOR BOTTOM CUT.**

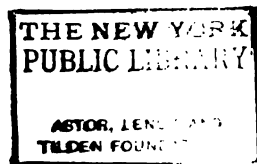


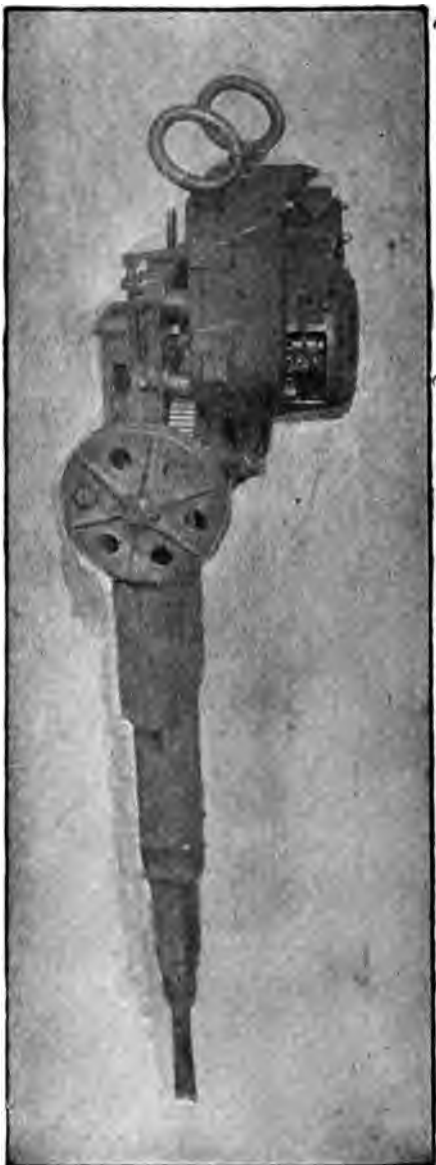
HARRISON MINING MACHINE.



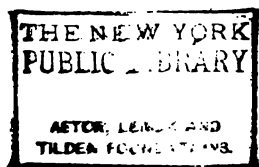


INGERSOLL-SEARGENT MACHINE.





MORGAN-GARDNER PROJECTILE MACHINE.

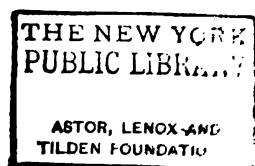




VESSEL LOADING MACHINE
IN USE AT CARDIFF SOUTH WALES'



JEFFREY 10-TON ELECTRIC MOTOR.

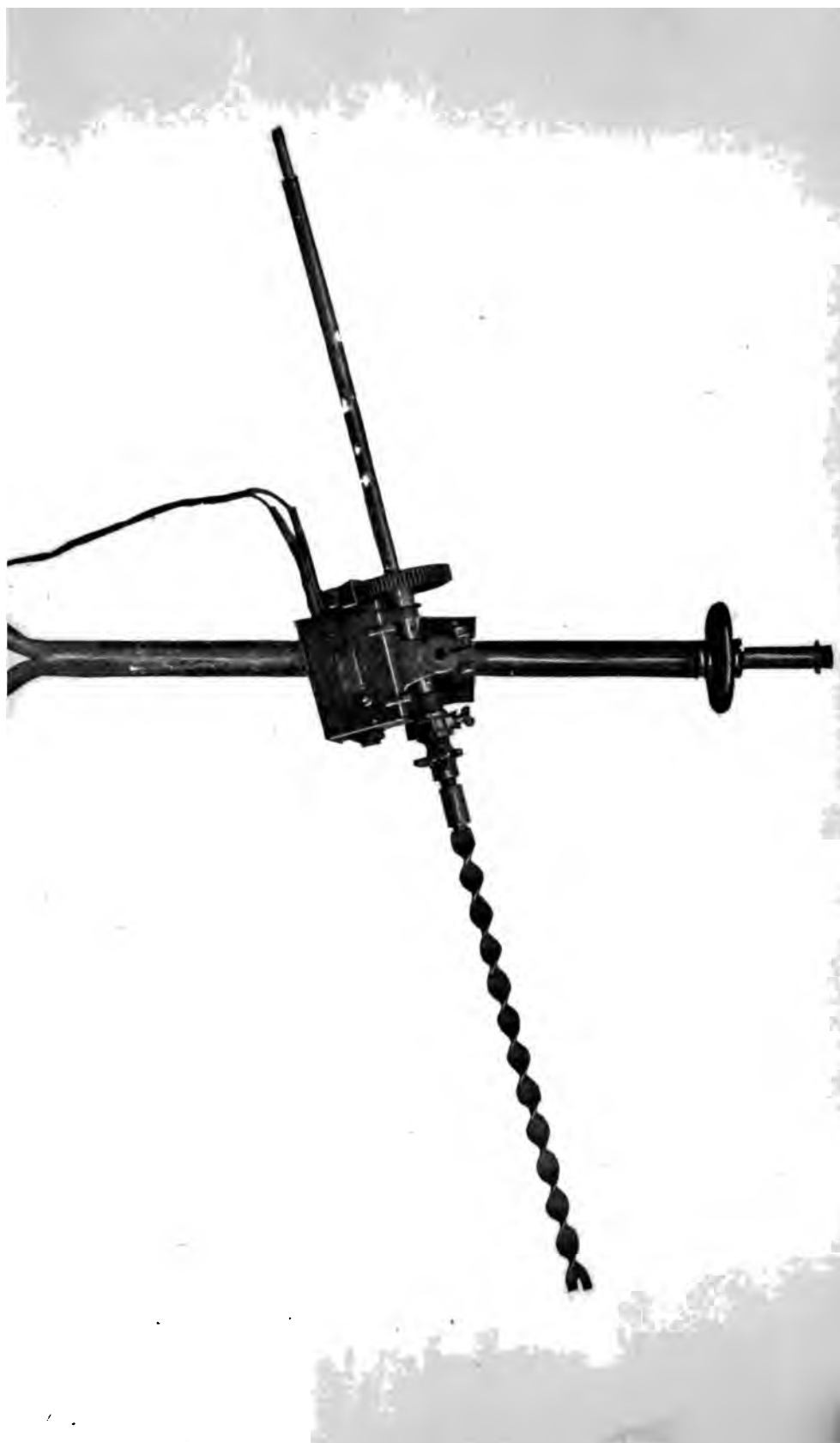


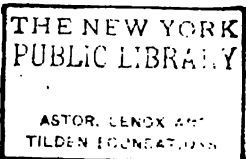


JEFFREY 16-TON ELECTRIC MOTOR.

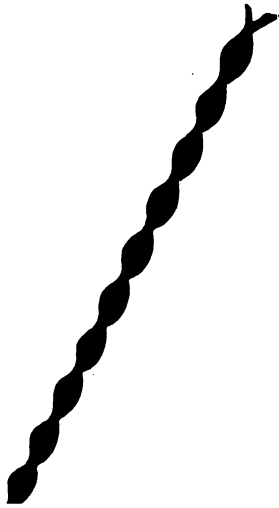
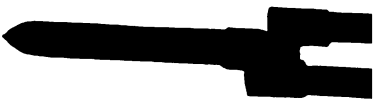
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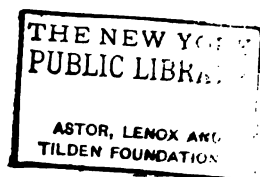
ASTOR, LENOX AND
TILDEN FOUNDATIONS.





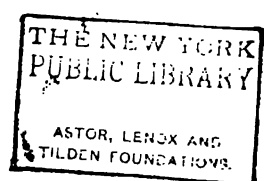
JEFFREY AIR COAL DRILL.







PORTABLE TRIPLEX ELECTRIC MINE PUMP.
CAPACITY 30 TO 240 GALLONS PER MINUTE.
MANUFACTURED BY THE LINK-BELT MACHINERY COMPANY, CHICAGO, U. S. A.



as rapidly as a helper can take it away, and it is said that during a year and a half's services no repairs were required. Eight machines of this type were in use in the State during 1892, and this number remained the same until 1896, when it increased to 15. In 1897 the number decreased to six, and the same number were in operation at the close of 1898.

Although the Sullivan machine was introduced during 1896, the first one that was installed in Ohio was at the Wainwright mine in Stark county during 1897. This was the only one of that make in use in this State at the close of last year. It is said to possess many of the features embraced in both the Ingersoll-Sergeant and the Harrison machines, and in addition it is equipped with a shearing appliance desirable in entry driving, by which it is claimed to cut a kerf six inches in width and from seven to eight feet in depth. It is said that in one instance, after a few months' trial, the machine runners became so proficient as to be able to make a run of 30 feet in a shift into a seven and one-half-foot vein. The limited number of this type of machines in use in Ohio prevents a general knowledge of their usefulness as compared with the other machines, although it is said that over 2,000 of them were manufactured during last year.

The attachment of electricity to mining machinery has developed other equally useful instruments for operating the mines and extracting the coal. Among them is the electric locomotive, which are made by nearly all of the companies engaged in the manufacture of mining machinery, and all are entitled to more or less merit.

The electric drill has also succeeded the compressed air drill, and it has been introduced into nearly all of the machine mines of the State.

Electricity has also been applied to pumps for removing the water from the mines, and owing to its being easily transported from one part of the mine to the other it is of great value to the industry.

In 1891 there were 51 firms and corporations, distributed over eight States, in whose mines coal was produced by machinery. In these they employed 545 machines. Of this number 126 were in Ohio, of which 25 were of the electric type and 91 were designed for the use of compressed air. At the close of the past year there were 252 machines in this State, 104 of them were of the electric

type and 58 used compressed air. It will be seen that while the number has exactly doubled, the greatest evolution occurred in the changing of the types from that of the compressed air to the use of electricity.

MINES IN WHICH MINING MACHINES HAVE BEEN INSTALLED AND THE NUMBER AND KIND OF EACH.

Within the past few years the fierce competition which coal from Ohio has met with coal from other states has given the Ohio operators who market their coal at the lake ports of the Northwest cause to be alarmed. This is especially true of the operators in the Hocking Valley, who have been forced to meet not only the coal from the sister states, but from other Ohio fields. The evident economy, as well as the other advantages to be derived by the use of mining machines has no doubt stimulated the installation of machines in several fields of the State, in which the conditions had heretofore been thought to be adverse to their adoption. Again, the reduction in the cost of establishing power plants has placed the mining machine within the reach of many operators who, but a few years ago, felt unable to install a mining plant.

The report of the past year shows that at 64 mines coal is produced by mining machines, as compared with 53 in 1897 and 44 during 1896. These mines are located in 12 counties, the same as during the preceding year. Installations were made at the Rara Avis, Sedalia and Coe Hill mines in Athens county; Nail Mill in Belmont; Kings, Imperial, Cambridge, Guernsey and Forsythe in Guernsey county; Tom Corwin No. 1 in Jackson; Dillon No. 2 and Kelley No. 2 in Jefferson, and Superior and No. 12 in Perry. These add a total of 14 mining plants to the list. The use of machines was discontinued at Springfield No. 2 in Athens county; Briar Ridge or Mathews No. 3 in Guernsey and at Alma in Jackson. The two former mines were worked out and abandoned.

The footings of the table show that at the close of the year there were 194 mining machines of the electric type in use as compared with 166 in 1897, 130 in 1896, 82 during 1895, 59 in 1894, 42 in 1893 and 27 in 1892. Of this number 91 were of the Jeffrey manufacture and an equal number were of the Morgan-Gardner type. Two were of the Independent or Link-Belt make and 10 were introduced by the General Electric Company.

Fifty-eight machines were operated by compressed air as compared with 67 during 1897, 79 in 1896, 82 in 1895 and 112 in 1894. Of these 31 were of the Jeffrey manufacture, 19 were Harrison, seven Ingersoll-Sergeant and one Sullivan. The three latter were of the reciprocating pattern. This shows a decrease of two Jeffrey, eight Harrison and a gain of one Ingersoll-Sergeant as compared with 1897.

The electric motor designed for the purpose of hauling the coal from the gathering points seems to have grown in especial favor during the year. The returns show that at the close of the year 22 motors were employed in 20 mines, which is an increase of 12 motors as compared with the previous year, and of 16 when compared with the year of 1896. The year's installations, with the exception of the one at the Rara Avis mine, were of the electric type.

The year's returns of coal mined show that 5,252,598 tons of coal were produced by mining machines as compared with 4,106,124 tons during 1897.

TABLE SHOWING THE NUMBER, MANUFACTURER, MOTIVE POWER AND LOCATION OF THE MINING MACHINES AND ELECTRIC MOTORS IN OPERATION IN THE STATE.

Name of mine.	Counties.	Electricity.						Compressed air.	
		Jeffrey.	Morgan-Gardner.	Independent or Link Belt Co.	General Electric Co.	Jeffrey.	Harrison.	Ingersoll-Sergeant.	Sullivan.
Bessie	Athens					2	1		
Phoenix No. 2.	"		6						
Rends No. 4	"		3			1			Morgan-Gardner.
Rends No. 4	"		1			1			Garner.
No. 10	"		5						2 Morgan-Gardner.
No. 16	"		1						Morgan-Gardner.
Half Moon or No. 3	"	1							Sperry Elec- tric Co.
Bells Run or No. 55	"		3						
Hawthorn	"	2	1						
No. 21	"		1						
Sedalia	"		2						
Onkdale or Jumbo	"		3						
Minkor Run or Hawks Hill	"					5	3		Tric Co.
Black Diamond	"	2	2						General Elec- Independent
Daleton	"		5	1					Link Belt Co.
Bura Ayls	"					3			
Coe Hill	"	1							
Flushing	Belmont					10			
Nail Mill	"								Jeffrey.
Somers No. 5.	Carroll	6							Jeffrey.
Slope	Columbiana	2	1						Morgan-Gardner.
New Shaft.	"	3	1						Garner.
Morgan Run.	Coshocton								Schlesinger.
Imperial	Guernsey		2						
Waldbounding	"		6						
Osco.	"		3						
Central	"	2	2						
Trail Run	"					1			
Hartford	"					1			
Kings.	"			1					
Cambridge	"	1							Morgan-Gardner.
Guernsey	"	1							
Forsythe	"	2							
Klondike	"		2						
New Pittsburg No. 7	Hocking								
New Pittsburg No. 8.	"	13					5		
New Pittsburg No. 9	"								
Murray City or No. 20	"	3							
Somers or Congate.	"	2	2						
C. and H. C. and I. Co. No. 15	"		1	3		3			
Cawthorn	"	2	2						
Snake Hollow	"		5						
Lost Run.	"	1							
Sand Run	"								
Brush Fork No. 2.	"	6				6			
Brush Fork No. 3.	"								Independent
Milton No. 1.	Jackson	6							Link Belt Co.
Milton No. 2	"								Jeffrey
Tom Corwin No. 1.	"		2	1					
Tom Corwin No. 2.	"					2			Morgan-Gardner.
Star No. 3	Jefferson	1					1		Garner.
Dillon No. 2	"	1							Jeffrey.
Long Run No. 2.	"		2						Akron Elec- tric Man- ufacturing Co.
Kelley No. 2	Meigs					2			Gardner
Silver Run	Perry	2	1						2 Morgan-Gardner.
C. and H. C. and I. Co. No. 3	"		8						Jeffrey.
Sunday Creek No. 21.	"	6							Jeffrey.
Congo No. 1	"	5							Jeffrey.
Congo No. 2	"	3							Jeffrey.
Upson	"	1							
Superior	"	2							
Mingo.	"	2							
No. 12	"				2				
Hutson No. 1	Portage								
Woodland	Stark						6	1	
Totals		91	91	2	10	31	19	7	1

Total by electricity, 194; by compressed air, 58.

**NUMBER OF MINES IN OPERATION AND TIME WORKED AS
COMPARED WITH 1897.**

The first four columns of the accompanying table exhibit the number of mines that were in operation in the State during the whole or a portion of the years of 1897 and 1898. The footings show that during the past year 1,155 mines were working, which is an increase of 29 as compared with 1897 and a gain of 42 when compared with the number in operation during 1896. The number of mines returned for the year 1898 is the greatest of any of which we have a record.

Under the column of gains we find that the counties of Carroll, Harrison, Muskingum, Lawrence and Meigs furnish 68 per cent. of the list. As these are small producers, it is possible that the list is principally composed of mines opened to supply the domestic trade.

The 10 leading counties of the State return an increase of 18 mines as compared with 32 during the preceding year. Of this number 14 were in Perry county. A decrease of 36 is reported from 11 counties. Of this number 15 were in three of the 10 leading counties, namely: Perry, Guernsey and Columbiana. Ten occurred in Perry, in which there was an increase of 14 during the year of 1897.

The average time worked is found to be 150½ days, the same as during the two preceding years. In 1894 and 1895 the average time worked equaled 168 days, 174 in 1893 and 194 during 1892. Gains equaling 304 days are reported from 11 counties, 92 per cent. of which occur in seven counties and 77 per cent. of the number are in five counties whose production is unimportant. Losses in the number of days worked amounting to 303 days occur in 17 counties. Of this time but 35 days are reported from five of the 10 principal producing counties of the State. Eighty-eight per cent. of the time lost occurred in unimportant counties. In Jacking and Medina the time worked was the same as during 1897.

TABLE SHOWING COMPARATIVELY THE NUMBER OF MINES OPERATED AND DAYS WORKED IN 1897 AND 1898.

Counties.	Number of mines worked in 1897.	Number of mines worked in 1898.	Gain.	Loss.	Average number days worked in 1897.	Average number days worked in 1898.	Gain.
Athens	41	45	4		136	121	
Belmont..	60	71			168	166	
Carroll..	21	31	10		166	114	
Columbiana	68	61		7	177	176	
Coshocton..	26	25		1	179	202	23
Gallia	8	5		3	81	121	40
Guernsey	33	30		3	118	165	47
Harrison.	53	65	12		111	136	
Holmes..	16	15		1	212	208	
Hocking	24	21			146	112	2
Jackson	78	83	5		127	127	
Jefferson.	44	46			156	173	17
Lawrence	37	41	4		167	171	
Mahoning..	46	40		6	173	166	7
Medina.	13	13			171	171	
Melgs.	34	41	7		146	149	3
Morgan ..	2	12			127	162	35
Monroe..	6	7	1		121	131	10
Muskingum	134	142	8		160	160	
Noble.	11	10		1	131	100	
Perry.	91	81		10	146	129	
Portage	5	4		1	35	169	74
Scioto	9	7		2	112	163	
Stark	80	91	11		164	163	
Summit	16	17	1		130	186	56
Trumbull.	16	12		4	157	99	
Tuscarawas.	81	85	4		173	159	
Vinton	15	15			151	140	
Washington.	5	6	1		96	92	
Wayne.	6	6			169	176	
Totals	1,226	1,355	129	36	150.2	150.2	394

LARGE AND SMALL MINES IN THE STATE AND THE NUMBER THAT WERE IN OPERATION DURING THE YEAR.

From the accompanying table it will be seen that there were 1,255 mines in the State at the close of the year. Notwithstanding the fact that the number of new mines opened was the least during the past five years, the total number returned is 52 in excess of 1897 and 27 more than returned in 1897. It is the greatest by that number in the State's history.

The largest number of mines appear in the counties of Muskingum, Perry, Stark, Tuscarawas and Jackson, which furnish per cent. of the list. Gains occur in 14 counties and losses in 11. In five they remained the same as during the year of 1897.

In conducting the work of the department the mines are divided into two classes, those which furnish employment to more than 100 men, being regarded as large mines and those employing less than

are rated as small mines. Of the former class there are 425, as against 418 during 1897. Of the latter class there are 880, a gain of 15 as compared with the preceding year.

It is found that 1,155 of the mines of the State were in operation either the whole or a portion of the year. This is an increase of 35 as compared with 1897. Of this number 396, a gain of 20, are rated as large mines, and 761, a gain of 11, are considered small mines. In the list of active mines, gains occur in 14 counties and losses in 11, in five the list remained the same as during the previous year.

The greatest number of large mines in operation occurred in the counties of Jackson, Perry, Stark, Tuscarawas, Athens, Columbiana and Belmont. The above seven counties furnish 60 per cent. of the list. The largest number of small mines that were active appear in the counties of Muskingum, Harrison, Stark, Tuscarawas and Belmont.

TABLE SHOWING THE NUMBER OF LARGE AND SMALL MINES IN THE STATE AND THE NUMBER OF EACH THAT WERE IN OPERATION DURING 1898.

Counties.	Number mines which employ more than 10 men.	Number mines which employ less than 10 men.	Total by counties.	Number large mines in operation during 1898.	Number small mines in operation during 1898.	Total number mines in operation during 1898.
Athens	32	32	54	32	16	48
Belmont	30	15	45	30	15	45
Carroll	11	21	32	11	21	32
Columbiana	31	36	67	31	36	67
Coshocton	15	10	25	15	10	25
Gallia	2	6	8	2	6	8
Guernsey	15	17	32	15	17	32
Harrison	1	59	60	1	61	62
Holmes	1	15	16	1	15	16
Hocking	18	9	27	17	10	27
Jackson	50	33	83	50	33	83
Jefferson	16	28	44	11	33	44
Lawrence	8	11	19	8	11	19
Mahoning	5	36	41	5	36	41
Medina	7	6	13	7	6	13
Meigs	11	29	40	11	29	40
Morzan	2	2	4	2	2	4
Monroe	1	8	9	1	8	9
Muskingum	15	13	28	15	13	28
Noble	1	11	12	1	11	12
Perry	18	18	36	18	18	36
Portage	1	1	2	1	1	2
Scioto	1	6	7	1	6	7
Stark	37	50	87	31	57	88
Summit	1	13	14	1	13	14
Trumbull	4	9	13	4	9	13
Tuscarawas	31	50	81	30	51	81
Vinton	8	9	17	7	10	17
Washington	1	5	6	1	5	6
Wayne	3	3	6	3	3	6
Totals	425	880	1,255	396	761	1,155

MINERS AND DAY HANDS.

By a comparison of the year's returns it is found that 28,365 persons found employment in the mines of the State during the year that has just closed. This is a decrease of 420 as compared with the preceding year, in which the number returned was given at 28,785. The accompanying table has been designed in such a way as to divide the miners employed into two classes, which are known as miners and day hands. The latter is subdivided so as to separate those who work on the inside from those employed on the outside of the mine. The table has been so arranged as to exhibit the number of miners and day hands employed during the past year as compared with those engaged during 1897.

In the column designated as "The number of miners employed" are classed all persons who were engaged in mining with the pick, as well as those who operated or assisted in operating mining machines, also those who were engaged in shooting down the coal and loading it into the mine cars.

It will be seen that the number of miners employed during 1898 amounted to 21,819, a decrease of 312 when compared with 1897 and of 326 when compared with 1896. The greatest number appear in the counties of Jackson, Perry, Athens, Stark, Hocking, Belmont, Guernsey, Columbiana, Jefferson and Tuscarawas in the order named. These, the 10 leading counties of the State in point of production, employed 17,766 miners or 81 per cent. of the miners employed during the year.

Gains occurred in 16 counties, of which Guernsey, Athens, Noble, Columbiana and Carroll are the most prominent. Losses appear in 14 counties, of which Tuscarawas, Jefferson and Coshocton are the only ones of importance.

Under "day hands" is embodied all labor which is paid for by the day. The returns show that there were 6,546 persons employed, a decrease of 108 as compared with 1897, against 6,301 during 1896, 6,582 in 1895, 6,330 in 1894 and 6,347 in 1893. The largest number appear in Jackson county, which is given at 1,239, and which is nearly double that of any other of the coal producing counties of the State.

Gains are reported in 10 counties, of which Perry, Stark, Columbiana and Tuscarawas furnished nearly 50 per cent. Losses appear in 18 counties, of which Meigs, Athens, Portage, Morgan and Columbiana furnished 70 per cent. In Lawrence and Washington no changes took place.

The table farther shows that 4,016 day hands were employed inside the mines as compared with 4,060 during 1897. Of this number 3,464 or 86 per cent. found employment in the 10 leading coal producing counties. It is also found that 2,530 outside day hands were employed as compared with 2,591 during the year 1897. Of this number 2,086 or 82 per cent. were engaged in the 10 leading counties.

TABLE SHOWING THE NUMBER OF MINERS AND DAY-HANDS EMPLOYED IN THE SEVERAL COUNTIES DURING 1898 AS COMPARED WITH 1897.

Counties.	Number miners employed during 1897.	Number miners employed during 1898.			Number day-hands employed during 1897.		Number day-hands employed during 1898.		Total.	
			Gain.	Loss.	In out side.	Total.	In out side.	Total.	Gain.	Loss.
Athens	2,255	2,111	180		106	271	620	379	231	610
Belmont	1,582	1,539		43	250	159	130	219	151	63
Carroll	288	271	162		52	31	23	58	46	101
Columbiana	1,171	1,287	116		132	331	263	348	112	312
Coshocton	606	587		179	97	81	578	54	113	35
Gallia	31	38	7		6	1	10	6	7	13
Guernsey	1,213	1,331	118		321	114	368	311	123	67
Harrison	96	127	31		16	19	35	17	11	7
Holmes	35	48	13		7	7	11	3	10	4
Hocking	1,703	1,757	54		181	235	306	254	27	31
Jackson	3,276	3,333	57		915	337	1,552	933	336	1,222
Jefferson	1,206	912		294	156	161	151	133	147	123
Lawrence	319	293		26	33	23	36	27	29	35
Madison	236	223		13	51	16	53	31	38	6
Meigs	290	317	27		19	36	76	41	21	10
Morgan	119	120	1		18	71	126	68	12	79
Monroe	81	61		20	6	1	16	5	11	1
Muskingum	25	28	3		3	3	3	3	3	1
Noble	576	571		5	32	33	33	33	33	1
Perry	1,147	1,235	88		319	171	613	374	223	150
Portage	2,132	1,179		953	111	171	171	171	171	63
Scioto	291	266		25	61	11	18	17	25	15
Stark	21	36	15		1	1	1	1	1	2
Summit	1,496	1,523	27		37	29	36	37	37	2
Tremont	121	123	2		6	11	26	14	41	9
Tuscarawas	33	47	14		6	11	26	14	11	1
Vinton	1,355	888		467	311	137	388	253	179	11
Washington	181	262	84		19	29	69	25	67	2
Wayne	11	21	10		3	3	3	3	3	48
Totals	22,131	21,819	1,039	1,318	1,060	2,591	6,654	4,016	2,530	6,516

REVIEW OF THE FOREGOING TABLES.

By an examination of the summaries of the foregoing tables, it is found that the year's coal production equaled 14,058,135 tons, from which, if there is deducted 5,252,598 tons, the amount produced by mining machines, it is found that there were 8,805,537 tons produced by pick mining. While it is a gain of 462,839 tons as compared with 1897, it is a loss of 738,722 tons when compared with 1896, and a loss of 1,757,886 tons when compared with 1895. It will be seen that while the year's total coal production has increased $11\frac{1}{2}$ per cent. as compared with 1897, the output of coal produced by pick mining has only increased 53-10 per cent.

From the table designed to exhibit the number of miners employed in the State it is found that 22,819 were so engaged during the year. If from this there is subtracted 6,692, the number of persons employed in operating mining machines, it is found that 16,127 were employed as pick miners, a loss of 271 when compared with 1897, of 1,093 with 1896, of 2,518 with 1895 and of 5,381 when compared with 1894. Thus it will be seen that the average production of coal for each miner during the year was 546 24-2000 tons as compared with 508 1537-2000 tons during the preceding year, 551 1 tons in 1896 and 556 1100-2000 tons during 1895.

The time worked is given at 150 1 days, the same as during the previous year. This allows to each miner an average daily production of 3 1251-2000 tons as compared with 3 762-2000 tons in 1897, 3 1840-2000 tons in 1896 and 3 740-2000 tons during the year of 1895.

The scale rate for pick mining of screened lump coal from November 15, 1897, to April 1, 1898, a period of four and one-half months, was 56 cents, and from April 1 to the close of the year, the rate was advanced to 66 cents. Thus it will be seen that the average price for the year was 62 1 cents per ton. By a generally accepted rule of long standing, it is estimated that two-sevenths of the coal passes through the screen, therefore at 62 1 cents for screened lump coal, the price for mining run of mine coal was 44 cents. This gives an average yearly earning to each miner of \$212.97 as compared with \$192.05 in 1897, and \$221.56 in 1896. It is found that each miner's daily wages during each of the 150 1 days that the mines were in operation was \$1.61, compared with \$1.27 in 1897 and \$1.47 during the year of 1896.

By an examination of the table designed to exhibit the amount of coal recovered by mining machines, it will be seen that 5,252,598 tons of run of mine coal were produced by this means. It has been found by actual practice in machine mining that 78 per cent. of the product is lump coal, hence it is found that of the year's production 4,097,026 tons passed over the screens. In the Hocking Valley, where 86 1-10 per cent. of the year's machine mined coal originated, it is found that 85 per cent. or 3,482,472 tons of lump coal came from room mining, and this is reckoned as "wide work," and that 614,554 tons or 15 per cent. came from entries and break-throughs, and this is known as "narrow work."

From the table it will be seen that 805 persons were engaged in operating mining machines. This makes a yearly average of 4,326 tons of wide work to each miner. The scale during the first four and one-half months of the year was seven and one-half cents and for the remaining seven and one-half months it was eight cents, the average price for the year being seven and eight-tenths cents. This places the average earnings of each machine man at \$337.43. Again, 15 per cent. or 614,554 tons originated from narrow work, which equals 763 tons to each machine man. This at 108-10 cents per ton, the average price paid during the year equals \$82.40. Thus it will be seen that to each machine man there was paid an average of \$419.83 for his year's work. The time that the machine mines were in operation is given at 171 days, an increase of 36 days, as compared with the year of 1897. It will be noted that each machine man received \$2.45 for each of the days that the mines were in operation.

The results show that 5,887 men, an increase of 886 over 1897, were employed in shooting down and loading the coal after it had been undermined by the machines. As before stated the coal originating from wide work amounted to 3,482,472 tons of lump coal. From the scale table it is found that during the first four and one-half months the rate of loading was 28 cents and for drilling and shooting it was one and three-fourth cents. During the remaining seven and one-half months of the year the price of loading advanced to 33 cents and for drilling to two cents, thus making the average price for the year 33 cents per ton. As a recompense for shooting and loading the above named amount there was paid \$1,149,215.76, an average of \$195.21 each, and for loading 614,554 tons taken from narrow work at 406-10 cents per ton, there was paid \$249,508.92, equaling \$42.38 per man, making a total of \$237.59 to each miner for

his year's work. This is an average of \$1.39 for each of the 171 days that the machine mines were in actual operation during the year, as compared with \$1.26 during 1897.

In former reports the computations have been made on the basis of pick mined coal, under which it is assumed that 72 per cent. was lump coal, but actual experience has demonstrated that the average lump coal produced by machine mining equaled 78 per cent. of the output, which accounts in a measure for the increase in wages as compared with the preceding year. From the returns received it is impossible to separate the coal produced by machines of the reciprocating pattern from that of the chain or rotary bar cutters, but as with few exceptions they are used in cutting around faults and deficiencies in the coal vein, and being comparatively few in number, it is believed that were the figures obtainable, they would but slightly vary the above results, which are based upon the scale paid to the chain or rotary bar cutters. These represent a fair average of the earnings of those engaged in the industry.

Attached will be found a neat and compactly arranged table showing the rate of mining from 1892 up to the present time. This is published with the consent of Mr. F. S. Brooks, the Secretary of the Ohio Coal Association, who is the designer.

NEW MINES OPENED, SUSPENDED AND ABANDONED.

With the close of the inspection year, which ended on November 15, 1898, the returns show that 79 new mines have been opened, 100 mines remained suspended and 73 were abandoned.

From the table it will be seen that there has been a decrease of 10 in the number of new mines opened. This is also a loss of 31 as compared with 1896, of 16 when compared with 1895, 40 as compared with 1894 and 28 when compared with 1893. It will be seen that the number of new openings made during the year that has just closed is the least since the beginning of the business depression of 1893. From the year 1887 to the beginning of the panic the number of mines opened annually averaged about 60. During 1893, when the depression was most severe, the number of new mines opened equaled 107, and during the five succeeding years they averaged over 100 annually. The greatest number of developments occur in the counties of Stark, Muskingum and Jackson, in which more than 33 per cent. appear.

The sudden diminution in developments occurring at a time of great industrial prosperity cannot be attributed to the fact that the coal trade had not shared in the general business revival, as the records show that the greatest developments were made under adverse conditions. It is difficult to account for this unless it is that the organizations of trusts and the centralization of capital has intimidated the promoters of mining enterprises.

The number of mines which remained suspended is given at 100. This is two less than the number idle during the preceding year and 19 less than the number returned in 1896. The greatest number of suspended mines was in the counties of Perry and Muskingum, which furnished 25 per cent. of the list.

Seventy-three mines are reported as having been either worked out or abandoned during the year. When compared with the two preceding years, during which the number has never been exceeded, it shows a decrease of 21 and 11 respectively. The greatest number reported in a single county appears in Perry, closely followed by Lawrence, Jackson and Belmont. These four counties furnish 40 per cent. of the total number of abandoned mines.

TABLE SHOWING THE NUMBER OF MINES OPENED, SUSPENDED AND ABANDONED DURING THE YEAR.

Counties.	Number new mines opened.	Number mines suspended.	Number mines abandoned.
Athens.	6	9	5
Belmont	2	1	6
Carroll	1	1	3
Columbiana	3	6	3
Coshocton	1		1
Gallia		3	
Guernsey	2	2	2
Harrison	1	5	
Holmes	1		
Hocking.		3	3
Jackson	7	6	4
Jefferson	5	8	1
Lawrence	1	5	9
Mahoning		1	2
Medina	1		3
Melgs.	1	2	1
Morgan			
Monroe		1	
Muskingum	9	11	5
Noble	6	1	1
Perry	3	15	10
Portage			
Scioto			
Stark.	12	5	5
Summit	1		1
Trumbull			
Tuscarawas	3	7	1
Vinton.	1	2	1
Washington			
Wayne.			
Totals	79	100	73

ATHENS COUNTY.

New mines.	Suspended.	Abandoned.
Schuler	Federal Valley No. 2.	No. 21
Rara Avis	West Floodwood	No. 63
Klondike	Phoenix No. 1	Phoenix No. 1
Greendale No. 29 New	Oak Grove.	Clay No. 5
Carbondale No. 2 East.	No. 59	Springfield No. 2
Carbondale No. 1 West	No. 63.	
	Dick ..	
	Chff..	
	Evans..	

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BELMONT COUNTY.

New mines.	Suspended.	Abandoned.
Armstrong	Wheeling Creek No. 2.....	Boggs No. 1
Boggs No. 2	Bernard	Davey No. 1
.....	Costine	Allen
.....	Acerville.....	Acerville
.....	.....	Costine
.....	.....	Hares

CARROLL COUNTY.

New mines.	Suspended.	Abandoned.
Linden No. 6.....	Hartford	Linden No. 4
Scott No. 2.....	.....	Linden No. 2
Cellars .....	.....	Scotts No. 1
Sharps.....	.....	.....

COLUMBIANA COUNTY.

New mines.	Suspended.	Abandoned.
Dewey.....	Oak Hill Slope	Carbon Hill No. 2
Card & Prosser No. 4.....	Phillip March	Carbon Hill No. 3
Carbon Hill No. 4.....	Oak Hill Drift.....	Second National
.....	J. T. Billingsly .....	.....
.....	Anderson .....	.....
.....	Walnut Hill.....	.....

COSHOCKTON COUNTY.

New mines.	Suspended.	Abandoned.
Warsaw No. 2.....	Conesville No. 1

GALLIA COUNTY.

New mines.	Suspended.	Abandoned.
.....	Jones Slope.....	.....
.....	D. D. Morgan.....	.....
.....	Thos. E. Evans.....	.....

GUERNSEY COUNTY.

New mines.	Suspended.	Abandoned.
Imperial.....	Moores.....	Briar Ridge No. 2
Klondike.....	Sayers.....	Briar Ridge No. 3

HARRISON COUNTY.

New mines.	Suspended.	Abandoned.
Stewart.....	Moorehead.....	.....
Patterson.....	John March.....	.....
Campbell.....	Snider.....	.....
Evans.....	Stevens.....	.....
.....	Jamison No. 1.....	.....

HOLMES COUNTY.

New mines.	Suspended.	Abandoned.
Harpster No. 2.....	Chevallard No. 1
.....	Harpster No. 1

HOCKING COUNTY.

New mines.	Suspended.	Abandoned.
	Consolidated	No. 19 North
	Rowe	No. 19 South
	Beech Grove	Kittanning

JACKSON COUNTY.

New mines.	Suspended.	Abandoned.
Dungans	Aetna	Star No. 3
Star No. 4	Ohio or Indiana	Iron Valley No. 2
Ohio Fire Brick	Hurds Shaft	Iron Valley No. 3
Laws	Hurd Slope	Garfield No. 1
Kelleys	Chapman	Riverton
Tragos	Byers	Ada No. 1
Higgins New		Glen Nell
		Higgins

JEFFERSON COUNTY.

New mines.	Suspended.	Abandoned.
Conners	Brilliant	Robert Clark
Nicholson	Bustard	
Taylor	Nelson	
Wallace	Wallace Coal	
Hill	Brown	
	Gravel Shaft	
	Robert Clark	
	Hout Bros	

LAWRENCE COUNTY.

New mines.	Suspended.	Abandoned.
Diggins No. 2	Ellison	Phillips Nos. 2 and 3
Everly Ore Nos. 5 and 6	Haskell No. 1	Ables
Burke No. 2	Kelley Lime	Ryne
	E. B. Willard Nos. 1 and 2	Cline
		Miller Nos. 1 and 2
		Hecla Nos. 1 and 2

MAHONING COUNTY.

New mines.	Suspended.	Abandoned.
.....	Hahn.....	Cyrus Paulin No. 1 Josiah Paulin

MEDINA COUNTY.

New mines.	Suspended.	Abandoned.
Akron No. 4.....	Eldorado Hudson Run New Excelsior No. 2

MEIGS COUNTY.

New mines.	Suspended.	Abandoned.
Silver Run No. 2..... Buckeye..... Palmer..... Rupe.....	Bear..... Forest.....	Silver Run No. 1

MONROE COUNTY.

New mines.	Suspended.	Abandoned.
.....	Steel.....	.....

MUSKINGUM COUNTY.

New mines.	Suspended.	Abandoned.
Potts No. 2.....	Harper No. 3.....	Potts No. 1
Weller.....	Emery No. 2.....	Neff
Ashcraft.....	Pansler	Bell No. 1
Smith No. 2.....	Campbell.....	Schultz No. 1
Griffen.....	Niebel.....	Pansler
Schultz No. 2.....	Lewis Harper.....	
Hoff No. 2.....	Kings.....	
McCormick No. 2...	Dresden.....	
German No. 2.....	Norman.....	
	Trimble.....	
	Ralph Spencer.....	

NOBLE COUNTY.

New mines.	Suspended.	Abandoned.
Merry No. 2.....	Bryan No. 2.....	
Miller.....	Yonally.....	Bryan No. 2
Robertson.....	McCalland.....	
Smith.....	Matheney.....	
Warfield.....		
Markee.....		

PERRY COUNTY.

New mines.	Suspended.	Abandoned.
No. 53 A.....	C. & E.....	XX Furnace
Beech Grove No. 5...	Hazelton No. 1.....	No. 33
Lyonsdale New.....	Shawnee Valley.....	Chicago
	Co-operative.....	C. & E.
	Welland.....	Davis
	Howe.....	Bristol No. 2
	Davis.....	Thacker
	Ohio Clay No. 2.....	
	Ohio Clay No. 3.....	No. 53
	Fahey.....	Lyonsdale No. 1
	Black Diamond No. 2.....	Ohio No. 3 Clay
	Hart.....	
	Beck & Poling.....	
	Samuel McKeever.....	
	John Bell.....	

STARK COUNTY.

New mines.	Suspended.	Abandoned.
Elm Run No. 3.....		
Singer.....	Minglewood Shaft.....	Milport No. 1.....
Gander Hill.....	South Massillon.....	Elm Run No. 2.....
Stanwood.....	Thouvenin.....	Rose Hill.....
North Massillon No. 2.....	Bowen.....	Paris.....
Krause No. 5.....	Fox Run.....	
Drake.....		Harter No. 1.....
West Brookfield.....		
Eureka.....		
Elm Run No. 4.....		
Central.....		

SUMMIT COUNTY.

New mines.	Suspended.	Abandoned.
Fox Lake.....		White Spar.....

TUSCARAWAS COUNTY.

New mines.	Suspended.	Abandoned.
Swan Mine.....	Harvey Gibbs.....	Briar Hill.....
East Goshen No. 1.....	Odberts Nos. 1, 2 and 3.....	
Horn No. 6.....	Pennsylvania Iron & Coal Co.....	
	Uhrichsville Coal.....	
	Somerdale North.....	

VINTON COUNTY.

New mines.	Suspended.	Abandoned.
Heasley New.....	Hanging Rock.....	Heasley No. 1.....
	Mill.....	

INSPECTION OF MINES MADE DURING THE YEAR.

With the close of the fiscal year, which ended on November 15, the records show that the members of the department made 1,993 inspections. This number has been exceeded but twice during the 11 years, of which a record has been preserved. It is believed that had not a change of inspectors occurred in three of the districts, thus compelling the outgoing officers to cease the field work in order to close up their books, that the year's record of visits made would have exceeded all others.

The returns show that there are 1,263 mines in the State, of which 1,163 were in operation during some portion of the year. Of the latter, 419 were visited once; 223, twice; 125, three times; 73, four times; 28, five times; 22, six times; nine, seven times; 10, eight times; two, 10 times, and one each nine and 17 times. But three times in the State's history has a mine been inspected more than 17 times during a year. These instances were occasioned by the approach to danger, such as an abandoned mine filled with water and poisonous gases.

From an examination of the first table it will be observed that the greatest number of inspections was made in Perry county. These are given at 223. Following in the order named will be found Jackson, Muskingum and Athens, Belmont and Columbiana, which furnish 52 per cent. of the list. It will be observed that with the exception of Muskingum these six are the home counties of inspectors, which no doubt local pride and convenience of access prompted their receiving especial attention.

The second table will be found to exhibit the number of visits that were made by each inspector during the year.

The third table is designed to show the total number of inspections made in each district. It will be seen that this varies from the other tables owing to its embracing visits made by inspectors of other districts in times of emergency. In addition, it contains the distribution of the visits made during the year by the Chief Inspector.

TABLE SHOWING THE NUMBER OF VISITS MADE IN EACH COUNTY DURING THE YEAR.

Counties.	Number of mines visited once.	Number of mines visited twice.	Number of mines visited three times.	Number of mines visited four times.	Number of mines visited five times.	Number of mines visited six times.	Number of mines visited seven times.	Number of mines visited eight times.	Number of mines visited nine times.	Number of mines visited ten times.	Number of mines visited seventeen times.	Total.
Number of visits	1	2	3	4	5	6	7	8	9	10	17	
Athens	18	6	7	10	3	3	2	1		2		161
Belmont	22	13	18	6		2		1				146
Carroll	18	4	4	4	1							54
Columbiana	14	8	4	6	3	2	2	2			1	140
Coshocton	11	4	9	1								50
Gallia		2										4
Guernsey	2	9	3	8	2	1						77
Harrison	32	8			1							58
Holmes	14											14
Hocking	8	6	5	1	1	3						62
Jackson	20	15	11	5	6	4	2	2				187
Jefferson	8	18	14	4		3	1					127
Lawrence	38	12		1		1						62
Mahoning	10	1	1	3								25
Medina	4	1	2	3								24
Meigs	23	2	8	2	2		1					76
Morgan		2										4
Monroe	7											7
Muskingum	55	51	4	3	1							186
Noble	26	2		1								34
Perry	35	19	18	12	4	2		2				223
Portage		4										8
Scioto	1	1										3
Stark	25	13	8	2	2	1		1	1			116
Summit	10	2										14
Trumbull	1			1								5
Tuscarawas	16	13	5	2	2		1	1				90
Vinton	4	3	2	1								20
Washington	4	3										10
Wayne	3	1	2									11
Totals	419	223	125	73	28	22	9	10	1	2	1	1,993

TABLE SHOWING THE NUMBER OF VISITS MADE BY EACH INSPECTOR DURING THE YEAR.

Name of Inspector.	Number of mines visited once.	Number of mines visited twice.	Number of mines visited three times.	Number of mines visited four times.	Number of mines visited five times.	Number of mines visited six times.	Number of mines visited seven times.	Number of mines visited eight times.	Number of mines visited fifteen times.	Total.
Number of visits	1	2	3	4	5	6	7	8	15	.....
Chief Inspector.....	17	2								21
Llewellyn.....	31	24	19	7	10	4	2	2		271
Beattie.....	65	22	9	5	4	1				180
Hull.....	74	11	4		2	1				118
Miller.....	118	32	16	3	1					277
Wilson.....	131	10	2	2		1				171
McGough.....	61	26	30	16	1	3		1		268
Love.....	57	4								35
Davis.....	61	28	22	8	2					225
Jones.....	24									24
Moore.....	46	27	12	3	1	3	1			178
Rees Davis.....	39	14	7	9	2	3	2	1	1	180
Totals	727	200	121	54	23	15	5	4	1	1,663

TABLE SHOWING THE NUMBER OF VISITS MADE IN EACH DISTRICT DURING THE YEAR.

Districts.	Number of mines visited once.	Number of mines visited twice.	Number of mines visited three times.	Number of mines visited four times.	Number of mines visited five times.	Number of mines visited six times.	Number of mines visited seven times.	Number of mines visited eight times.	Number of mines visited nine times.	Number of mines visited ten times.	Number of mines visited seventeen times.	Total.
Number of visits	1	2		4	5	6	7	8	9	10	17	.....
First district.....	33	25	18	7	7	7	12	2				272
Second district.....	78	25	15	12	5	3	3	1		2		313
Third district.....	116	74	22	16	5	3		2				447
Fourth district.....	56	26	30	15	2	3		1	1			294
Fifth district.....	57	32	19	9	3	3	1	1				262
Sixth district.....	44	27	15	4	4	1	1	2	1			217
Seventh district.....	35	14	6	10	2	3	2	1			1	188
Totals	419	223	125	73	28	22	9	10	1	2	1	1,993

SCALES TESTED AND MINE CARS MEASURED DURING THE YEAR.

An application to test the scales at any mine in the State is a request that the members of the department are instructed to give their immediate attention. Much trouble and expense have been experienced in the past, owing to these requests being made by irresponsible and disinterested parties. In some instances they were prompted by malice, the parties having a grievance. Requests coming from any of these sources invariably create disturbance at the mine and place the department under unnecessary expense, and more or less inconvenience. To obviate this unsatisfactory manner of serving the craft during the year of 1896 the department issued a circular as provided for in section 305, in which it was requested that the mine committee should make the request that the scales be tested, and at the same time call attention to any other defects that might exist in the mine. This has been the mode of obviating the former trouble and the work during the year has gone on more satisfactorily.

During the year that has just closed 99 sets of scales were tested. These were located in 14 of the coal producing counties of the State. This number has been exceeded but once during the time that the department has kept a record. In 1893, 120 sets of scales were inspected. The greatest number tested during the year was in Stark county, which is given at 21. This is followed by 14 in Tuscarawas, 11 in Jackson and nine in Belmont. In these four counties 57 per cent. of the list originated. Of the number returned 82 sets, or about 83 per cent., were found to weigh accurately, and 17 sets, or 17 per cent., were out of order and weighed incorrectly. Of this number four were reported as weighing against the miner and one set was adverse to the operator. The beneficiary of the remaining 12 sets was not given.

There were no requests made to measure mine cars during the year. During the past 11 years 858 sets of scales were tested. Of this number 548, or 64 per cent., were found to weigh correctly.

SCALES TESTED AND MINE CARS MEASURED.

ATHENS COUNTY.

Date.	Name of mine.	Name of owner.	By whom tested.	Result.
1897. Nov. 29	No. 10	Sunday Creek Coal Co.	Alex Beattie.	Found accurate.
" Nov. 30	Black Diamond	Black Diamond Coal & Coke Co.	"	"
1898. Aug. 10	No. 6 or Briar Ridge	W. P. Rend & Co.	E. W. Hull.	"
Aug. 26	Bessie	Buckeye Coal Co.	"	Found inaccurate and were condemned.

BELMONT COUNTY.

Date.	Name of mine.	Name of owner.	By whom tested.	Result.
1897. Dec. 16	Gaylord	Gaylord Mining Co.	Thomas McGough	Found correct.
1898. Jan. 17	Meister No. 1	Meister & Son.	"	"
Apr. 19	Maple Hill	Maple Hill Coal Co.	"	"
Apr. 28	Gaylord	Gaylord Mining Co.	"	"
May 24	Franklin	Owen Meehan	"	"
Aug. 9	Glen	Glen Coal Co.	"	"
Sept. 21	Captina	Captina Coal Co.	"	"

SCALES TESTED AND MINE CARS MEASURED—Continued.

CARROLL COUNTY.

Date.	Name of mine.	Name of owner.	By whom tested.	Result.
1888.				
May 4	Scotts	Mardy Coal & Mining Co.	James P. Davis	Found correct.
May 7	Elder	J. D. Owens Mining Co.	"	"
May 13	Linden	Davis Railway Coal Co.	"	Found incorrect.
June 10		"	"	"
Aug. 18	Davis No. 3.	R. H. Wainwright	"	"
Sept. 19	"	"	"	"
Oct. 7	Elder	J. D. Owens Mining Co.	"	Found correct.

COLUMBIANA COUNTY.

Date.	Name of mine.	Name of owner.	By whom tested.	Result.
1888.				
June 14	New Shaft.	Big Vein Coal Co.	James P. Davis	Found incorrect.
June 20	"	"	"	"
Aug. 26	Prospect Hill	Prospect Hill Coal Co.	Rees T. Davis	Found correct.
Aug. 27	"	"	"	"
Nov. 20	State Line.	State Line Coal Co.	"	"
"	"	"	"	"

SCALES TESTED AND MINE CARS MEASURED—Continued.

GUERNSEY COUNTY.

Date.	Name of mine.	Name of owner.	By whom tested.	Result.
1898. Mar. 5 "	Kings "	Morris & Guild.	Thomas McGough	Found accurate.

HARRISON COUNTY.

Date.	Name of mine.	Name of owner.	By whom tested.	Result.
1898. Mar. 11	Messenger ..	East Massillon Coal Co	James P. Davis.	Found correct.

HOCKING COUNTY.

Date.	Name of mine.	Name of owner.	By whom tested.	Result.
1898. May 8 Sept. 14	Cawthorn Morris No. 1.	Stalter Coal Co. Columbus, Buckeye & Hocking Railway Co.	Samuel Llewellyn "	Found accurate. "

SCALES TESTED AND MINE CARS MEASURED—Continued.

JACKSON COUNTY.

Date.	Name of mine.	Name of owner.	By whom tested.	Result.
1897. Dec. 10	Milton No. 1	Milton Coal Co	Samuel Llewellyn	Found correct.
"	"	"	"	"
1898. Mar. 14	Tom Corwin No. 2	Machine Coal Co.	"	"
July 23	Wainwright ..	Wainwright Coal Co	"	Found incorrect. Found incorrect. Found incorrect.
July 30	"	"	"	Ordered scale maker sent for.
Aug. 27	Springfield..	Chapman Coal Co.	"	Found incorrect.
"	Grace..	"	"	"
Sept. 9	Fluhart No. 2	Fluhart Coal Co	"	Found correct.
Sept. 10	"	"	"	"

MEIGS COUNTY.

Date.	Name of mine.	Name of owner.	By whom tested.	Result.
1897. Nov. 22	Charter Oak	Charter Oak Coal Co.	Alex Beattie	Found inaccurate.
Dec. 7	Syracuse Shaft.	Syracuse Coal & Salt Co.	"	Found correct.
"	Syracuse Slope	"	"	Found inaccurate.

SCALES TESTED AND MINE CARS MEASURED—Continued.

NOBLE COUNTY.

Date.	Name of mine.	Name of owner.	By whom tested.	Result.
1887. Nov. 28	Glenwood	Glenwood Coal Co.	Robert H. Miller	Found accurate.

PERRY COUNTY.

Date.	Name of mine.	Name of owner.	By whom tested.	Result.
1887. Dec. 14	Dickson	J. B. Hamilton	Robert H. Miller	Found accurate.
Dec. 15	Hemlock or No. 20	Columbus & Shawnee Coal Co	"	Found inaccurate.
Dec. 21	"	"	"	"
Dec. 27	XX	Taylor, Williams & Co	"	"
"	"	"	"	"
Dec. 31	Lyonsdale	M. Meenan	"	Found correct.
1888. May 20	Lower.	Tague Bros. & Co	"	Found accurate.
Aug. 9	Congo No. 1	Congo Mining Co	David B. Wilson	"
"	"	"	"	"
Aug. 9	Congo No. 1	Congo Mining Co.	"	Found correct.
"	"	"	"	"

Scales Tested and Mine Cars Measured—Continued.
STARK COUNTY.

Date.	Name of mine.	Name of owner.	By whom tested.	Result.
1896.				
Feb. 15	Minglewood Slope	James Mullins	Wm. K. Moore	Found correct.
Feb. 26	New Greenville	Howells Mining Co.	"	"
"	Youngs Shaft	J. F. Pocock	"	"
Mar. 11	Hernbrook	Ridgeway, Burton & Co.	"	"
May 20	Tunnel	Monongahela & Lake Erie C'al Co	"	"
"	Tressel	L. R. Tressel & Co.	"	"
June 2	Nutwood	Nutwood Coal Co.	"	"
June 11	Warwick	Warwick Coal Co.	"	"
"	Krause No. 5	E. G. Krause & Co.	"	"
June 21	Minglew'd Shaft No. 3	James Mullins	"	"
July 5	West Massillon No. 3	West Massillon Coal Co.	"	"
July 11	Clover Hill	Fox Lake Coal Co.	"	"
July 14	Youngs Shaft	J. F. Pocock	"	"
Sept. 19	New Greenville	Howells Mining Co.	"	"
Sept. 23	Summit Hill	L. F. Smith	"	"
Oct. 21	Western Ohio No. 1	West Lebanon Coal Co.	"	"
Oct. 22	North Massillon No. 2	Ridgeway, Burton & Co.	"	"
Oct. 27	West Massillon	West Massillon Coal Co.	"	"
Nov. 7	Minglewood Slope	James Mullins	"	"
"	Minglew'd Shaft No. 3	"	"	"
Nov. 10	Warwick	Warwick Coal Co.	"	"

SCALES TESTED MINE CARS MEASURED—Continued.

SUMMIT COUNTY.

Date.	Name of mine.	Name of owner.	By whom tested.	Result.
1898. June 12	Turkey Foot	Browster Coal Co.	Rees T. Davis	Found accurate.

TUSCARAWAS COUNTY.

Date.	Name of mine.	Name of owner.	By whom tested.	Result.
1898. 7 Feb. "	Somerdale No. 1.	Somerdale Coal Co.	Wm. K. Moore	Found accurate.
" "	Somerdale No. 2.	"	"	"
May 4	Newport.	Erhard Coal Co.	"	"
May 5	Brock Hill	Midvale-Goshen Coal Co.	"	"
" "	T. V. No. 1.	"	"	"
" "	Midvale No. 2.	"	"	"
May 10	Twin City.	Dennison Coal Co.	"	"
July 26	Newport.	Erhard Coal Co.	"	"
Aug. 15	Shanesville.	Shanesville Coal Co.	"	"
Aug. 19	Newport.	Erhard Coal Co.	"	"
Sept. 9	Brock Hill	Midvale-Goshen Coal Co.	"	"
Sept. 21	Pocoaks	Gordon Coal Co.	"	"
" "	Tunnell.	Brick Bros.	"	"
" 19	Huffs Run.	Ridgeway, Burton & Co.	"	"

SCALES TESTED AND MINE CARS MEASURED—Concluded.

WAYNE COUNTY.

Date.	Name of mine.	Name of owner.	By whom tested.	Result.
1888. Mar. 14	Dalton	Howells Mining Co	Wm. K. Moore	Found incorrect.
"	"	"	"	"
Apr. 9	California	Seiberling, Miller & Co.	"	Found correct.
Oct. 17	Wayne	Ohio Coal & Salt Co	"	"
"	Mobile	Baystinger & Duncan	"	"

**TABLES SHOWING THE NUMBER OF SCALES TESTED AND THE
RESULT OF THE EXAMINATION FROM 1897 TO
THE CLOSE OF THE YEAR.**

Years.	Number sets of scales tested.	Number sets found correct.	Number sets found incorrect.	Remarks.
1897	74			
1898	55	41	14	
1899	48	33	14	
1890	59	46	20	
1891	61	37	25	
1892	86	62	24	8 in favor of company, 6 in favor miners.
1893	120	81	39	12 favor of operators, 3 to miners.
1894	64	37	27	15 in favor operators, others not known.
1895	96	65	31	15 in favor operators, 14 favor miners.
1896	93	65	28	5 against miner, 1 against operator.
1897	77	59	18	3 against miner, 3 against operator.
1898	99	82	17	4 against miner, 1 against operator.
Total	858			

PERMANENT IMPROVEMENTS MADE IN THE MINES OF THE STATE.

A review of the subjoined tables exhibits the number of permanent improvements secured during the past year, as well as those made during the last 15 years. From the first table it is seen that the total number of substantial improvements equaled 213. This number has been exceeded but four times during the past 15 years, and is 25 in excess of the average during that period.

In itemizing them it is found that 44 furnaces were built, which is four in excess of the number returned for the previous year, and two less than the yearly average during the past decade and a half. The installation of 17 fans, while the same number as during 1895, is four less than the year of 1896. It is also a decrease of five as compared with 1897. It would seem that with the well established superiority of fan ventilation and its adaptability to all classes of mines that it would be more universally adopted. Especially is this true since electricity and the gas engine have been introduced into

the mining industry, thus avoiding the loss of power incident to the condensation of steam long distances, or of injury to the roof of the mine by the laying of hot pipes along the entries.

With the objectionable features removed, it is but natural to expect that the furnace and fire basket would gradually disappear, on the contrary the miner adheres to his early training and maintains the average number erected with that of the past 15 years. The year's returns show that 15 fire baskets have been hung during the year, which is a number in excess of any year of which the department has a record. This may be accounted for upon the assumption that the inspectors caused them to be installed in small mines, which otherwise would have depended upon natural ventilation.

With a view of improving the ventilation, 73 air shafts were sunk. As a convenient and ready means of ingress and egress and as an available means of escape in case of an accident, 45 second openings were made and 11 stairways were erected. In a number of instances this was the third or fourth passageway to the surface that had been provided during the life of the mine. These are made necessary in order to reduce the peril offered to the life of the miner.

It is gratifying to note the steady growth in the number of permanent improvements annually made in and about the mines of the State, as it evinces a disposition on the part of the operators to provide the most effective and modern appliances in order to protect the lives and health of their employees.

The second table exhibits the number of improvements made during the 15 years, of which a record has been kept. It will be seen that they amount in the aggregate to 2,829.

**TABLE SHOWING THE NUMBER AND CHARACTER OF THE
PERMANENT IMPROVEMENTS MADE IN THE MINES OF
THE STATE DURING THE INSPECTION YEAR.**

Name of district inspector.	Furnaces.	Fans.	Air shafts.	Second open- ings.	Safety catches.	Stairways.	Speaking tubes.	Ventilating baskets.	Total.
Llewellyn	3	3	9	3	1	1		2	22
Beattie	2	1	5	1	1	2			12
Hull		1	1						2
Miller	6	3	12	10		1		7	39
Wilson	2		3						7
McGough	11	2	12	24	1	1	1	1	53
James P. Davis	10	1	11	2		2			26
Moore	9	3	12	1	4	4		3	36
R. T. Davis	1	3	6	4				2	16
Totals	44	17	73	45	7	11	1	15	213

**TABLE SHOWING THE NUMBER AND CHARACTER OF THE
PERMANENT IMPROVEMENTS MADE IN THE MINES
OF THE STATE FROM 1884 TO 1898 INCLUSIVE.**

Years.	Furnaces.	Fans.	Air shafts.	Second open- ings.	Safety catches.	Stairways.	Speaking tubes.	Ventilating baskets.	Total.
1884	43	10							53
1885	45	19	45		13				122
1886	13	6	22	10		12			63
1887	39	9	50	7		8			113
1888	43	4	52	17	13	12			141
1889	42	13	57	21	7	3	3		146
1890	57	20	66	46	8	11	4		212
1891	53	17	55	26	19	19	5		194
1892	37	26	65	27	13	7	4	12	181
1893	77	35	131	67	16	19	5	4	354
1894	55	18	106	60	7	11	3	9	269
1895	66	17	105	60	9	11	3	13	274
1896	56	21	93	81	5	7	3	14	280
1897	40	22	75	44	4	7	3	9	204
1898	44	17	73	45	7	11	1	1	213
Totals	710	254	995	511	121	138	34	66	2,829

MINES WHICH GENERATE LIGHT CARBURETTED HYDROGEN GAS.—(FIRE DAMP.)

In 35 mines which are distributed over 10 of the 30 coal producing counties of the State, this dangerous contingent to the mining industry has been found to generate, as compared with the same number during 1897, and 38 in nine counties during 1895 and 1896. In Athens, Belmont, Jackson and Noble counties the list remains the same as during the preceding year. In Columbiana county, Lythe No. 2, Folts, Salem and First National have been dropped and Pine Hill has been added to the list. In Jefferson, Calumet has been dropped and Rolling Mill No. 2 has been added. In Guernsey county, Forsythe, Klondike and Imperial have been added, and Hutson No. 4 mine in Deerfield township has added Portage county to the list. In Stark county Minglewood Shaft and Warwick have been dropped.

The baneful effects of fire damp in the mines of the State are conspicuous in the table devoted to casualties, where it is seen that its presence is responsible for 13 of the accidents occurring during the year. One of these was fatal, two were of a serious nature and 10 were of a minor character. The single fatality reported was due to a party who was driving an air course at the Central mine at Lisbon, in Columbiana county. While drilling a hole they broke through into an abandoned room, liberating a body of gas, which ignited from a naked lamp and set the coal on fire. The parties in both the air course and entry hastily retreated, and in doing so they failed to notify Mr. James Conley, who, unknown to them, was working in a room nearby, and before he was aware of any danger his retreat was cut off, and he was asphyxiated from the effects of the after damp. John Ryan at Minglewood Slope, in Stark county, and Mike Anderson at Chestnut Hill mine No. 2, in Perry, were seriously burned by a slight explosion. Joseph Adams and George Brooks at the Hutson No. 4 mine, in Portage, and Charles Swartz at North Greenville Shaft, in Stark county, received minor injuries from the effects of brushing gas out of their working faces, and Andrew Brinza and Thomas Richards, although previously warned, were slightly burned in the Ciseo mine in Guernsey county while operating a mining machine and cutting into an abandoned oil well.

When the number of mines in the State and the peril incident to this deadly enemy to the mining craft are considered, the returns of the year's casualties arising from this source are fairly satisfactory.

**MINES WHICH GENERATE LIGHT CARBURETTED HYDROGEN
GAS—(FIRE DAMP.)**

ATHENS COUNTY.		
Phoenix No. 2	No. 10	Oakdale
Rends No. 4	No. 18 or Mud Fork	Daleton
Rends No. 6	No. 24	
BELMONT COUNTY.		
Captina	Schnegg	
COLUMBIANA COUNTY.		
New Shaft	Pine Hill	
Central	Cherry Valley No. 3	
GUERNSEY COUNTY.		
Kings	Walhounding	Central
Klondike	Cisco	Trail Run
Imperial	Hartford	Forsythe
JACKSON COUNTY.		
Wainwright	Fluhart No. 3	
JEFFERSON COUNTY.		
High Shaft	Rolling Mill No. 2	
NOBLE COUNTY.		
Glenwood		
PERRY COUNTY.		
Rends No. 3		Cestnut Hill No. 2
PORTAGE COUNTY.		
Hutson No. 4		
STARK COUNTY.		
Minglewood Slope		Youngs Shaft
Minglewood Shaft No. 3 or Singer		
New Greenville		

CHARACTER OF DEVELOPMENTS AND MODE OF VENTILATION.

The accompanying table has been designed to make clear and present as a ready reference the character of the openings employed by which to remove the coal from the mines of the State. The table also exhibits the character of appliances employed to produce ventilation and the number of mines to which each device has been applied. The table farther shows the number and location of mines which depend upon the laws of nature for ventilation, as well as the number of which the mode of ventilation is unknown.

When the year closed there were 1,255 mines in the State. This represents a gain of 27 as compared with 1897 and of 51 over the number reported during 1896. Of this number the mode of development of but 46 is not given in the table as compared with 190 during 1897, 167 in 1896, 220 in 1895 and 296 in 1894. Thus it will be seen that with the exception of a few of comparative insignificance the methods employed to develop the mines of the State are known.

The returns for the year show that at 921 mines the coal is reached by means of a drift, an increase of 121 as compared with the number returned during 1897 and of 100 in 1896. The largest number reported are from the counties of Muskingum, Tuscarawas, Perry and Belmont, which furnish 38 per cent. of the list.

At 143 mines the coal is removed by means of a shaft, a decrease of 10 over the preceding year. The greatest number of shaft mines are found in the counties of Stark, Jackson, Mahoning and Athens, which furnish 60 per cent. of the list.

There are 115 slopes, as compared with 85 in 1897 and 66 in 1896. The greatest number occur in Stark, Columbiana, Jackson and Mahoning counties, which return 42 per cent. of the list.

The fluctuations in the footings as compared with former years are accounted for by the fact that the members of the department have given more attention to the character of development employed at the small mines throughout the State than during former years. This reduces the number which appear in the column of small mines, the character of opening of which was unknown. There is no doubt that some changes are due to the working out and abandoning of mines during the year.

In the second portion of the table, which is designed to exhibit the mode of ventilation, it will be observed that 149 mines have em-

ployed fan ventilation, the same number as during the preceding year. These are distributed over 20 counties as compared with 22 during 1897, their use having been discontinued in the counties of Trumbull and Washington. The largest number appear in the counties of Jackson, Athens, Stark, Columbiana, Hocking, Perry and Guernsey. In these seven counties 80 per cent. of the fans are employed.

In 317 mines a furnace is used as a means of ventilation, which is an increase of 37. This mode of ventilation is employed in every county of the State save one. The four mines in Portage are all provided with fans.

In 45 mines fire baskets are employed. The largest number are in the counties of Muskingum and Perry from where more than half the list is made up.

Steam jets and exhaust steam from the pumps produce a sufficient current at 47 mines.

At 636 mines the course of the winds is relied upon as a means of ventilation. Almost universally these are mines of minor importance, employing from one to four or five men during a few months in the winter, for the purpose of supplying the home of the owner and the demand in the neighborhood. In many cases these are openings around the crest of a hill, which has been pierced at several points, through which the wind flows in sufficient volume to supply the demand.

At 73 mines the mode of ventilation is unknown. This list has been reduced by 127 during the past year.

At New Pittsburg No. 8 mine in Hocking county two fans are used, and at the Nail Mill mine in Belmont and the Cawthorn mine in Hocking, both fan and furnace are employed. At XX mine in Perry county a fan and a fire basket are used. At Hutson Run mine in Medina county the furnace is assisted by exhaust steam. At Hern Brook, West Massillon No. 3, Singer Woodland and Western Ohio No. 1 in Stark county, Turkey Foot in Summit, and Howells in Wayne, both fan and exhaust steam are employed.

TABLE SHOWING THE NUMBER OF MINES EMPLOYING THE
VARIOUS METHODS OF VENTILATION AND
THE THREE KINDS OF OPENINGS.

Counties.	Character of opening.					Mode of ventilation.						
	Drift.	Shaft.	Slope.	Small mines, kind of opening unknown.	Total.	Fan.	Furnace.	Fire basket.	Steam jet and exhaust from pumps.	Natural.	Small mines, method of ventilation unknown.	Total.
Athens	38	11	4	1	54	18	15	3		17	1	54
Belmont	67	2	6		75	5	44		1	26		76
Carroll	28	1	3		32	1	9	3		17	2	32
Columbiana	42	5	15	5	67	14	18	1	1	28	5	67
Coshocton	24			1	25		17			6	2	25
Gallia	4		2	2	8		3			2	3	8
Guernsey	20	7	5		32	11	3	1	1	16		32
Harrison	57	4	6	3	70		5			55	10	70
Holmes	15				15		2	1		12		15
Hocking	24		1	2	27	14	4	1		8	2	29
Jackson	47	26	13	3	89	36	20	3		26	4	89
Jefferson	41	7	4	2	54	7	17			28	2	54
Lawrence	46			3	49		5	1		39	4	49
Mahoning	10	18	12	1	41	2	10	2	6	17	4	41
Medina	1	3	9		13		3		7	3		14
Meigs	40		1	1	43	3	8			31	1	43
Morgan			1		2		2					2
Monroe	6	2			8		1			7		8
Muskingum	139	1	8	5	153	1	28	10		106	8	153
Noble	4	2	1		44	1	2	1		40		44
Perry	75	7	9	5	96	11	18	15	1	46	6	97
Portage		4			4	4						4
Scioto	7				7		1			6		7
Stark	42	32	21	1	96	15	25	1	23	34	3	101
Summit	7	5	5		17	1	3		5	9		18
Trumbull	3	3	6		12		3		1	8		12
Tuscarawas	74		9	10	93	2	41	1		34	15	93
Vinton	15	1		1	17	1	6			9	1	17
Washington	3		3		6		2			4		6
Wayne	4	1	1		6	1	2	1	1	2		7
Totals	921	143	145	46	1,255	149	317	45	47	636	73	1,267

Nail Mill mine—Belmont county, uses fan and furnace.

Pittsburg No. 8—Hocking county, uses two fans. Cawthorn mine uses fan and furnace.

Hutson Run mine—Medina county, uses furnace and exhaust steam.

XX mine—Perry county, uses fan and fire basket.

Hern Brook mine—Stark county, uses fan and exhaust steam, as also do West Massillon No. 3, Singer, Woodland and Western Ohio mines.

Turkey Foot mine—Summit county, uses fan and exhaust steam.

Howells mine—Wayne county, uses fan and exhaust steam.

Years.	1892.	1893.	1894.	1895.	1896.	1897.	1898.
Drifts.....	303	676	657	749	821	800	921
Shafts.....	91	121	149	150	149	153	143
Slopes.....	40	61	61	68	66	85	145
Small mines, kind of opening not known	458	151	296	220	167	190	46
Totals.....	892	1,009	1,163	1,187	1,203	1,228	1,255
Fans ..	127	141	139	134	134	149	149
Furnaces ..	253	323	264	278	281	280	317
Fire baskets ..	11	23	32	36	38	51	45
Steam jet and exhaust from pumps	30	39	43	48	52	49	47
Natural.....	205	316	378	452	528	516	636
Small mines, mode of ventilation not known.....	206	167	309	242	179	200	73
Totals	892	1,009	1,165	1,190	1,212	1,245	1,267

POWDER CONSUMED IN THE MINES.

The result of the efforts made to ascertain the amount of powder consumed in the mines of the State during the past year will be found in the subjoined table. It is regretted that fuller and more complete returns could not be secured. This is entirely due to the fact that a large number of dealers in the towns and villages, in addition to selling to the miners, supply quarrymen, contractors and the general trade. These people in but few instances keep an account of the transaction and often they have no record of the amount of powder purchased during the year.

The accompanying table will, however, give a fair average of the amount of coal produced to the keg of powder consumed as the results represent the greater portion of the mines in the State. There are 956 persons or firms operating mines in the State. Of this number 553 or 58 per cent. made returns. The firms who reported produced 11,360,640 tons, or 81 per cent. of the year's tonnage of coal, compared with 76 per cent. during the preceding year. The footings indicate that 190,183 kegs, equaling 4,754,575 pounds, or 2,377½ tons of powder were consumed in the mines from which returns have been received.

As a result of compiling the subjoined table it is found that there was an average of 59½ tons of coal secured by the explosion of each keg of powder, as compared with 55½ tons in 1897, 55½ in 1896, 58

during 1895, 61 1-10 in 1894, 64 in 1893 and 63½ in 1892, when the first effort was made to obtain this information.

From the 10 leading counties of the State returns were received from 293 persons and firms who produced 9,954,459 tons of coal, which equals 87 6-10 per cent. of the coal returns in the accompanying table. In securing this amount there was 160,824 kegs of powder consumed. This produced an average of 61 9-10 tons of coal to the keg of powder used.

The smallest production is returned from Jackson county, which is given at 29 tons and the largest is from Belmont which is found to be 148 tons.

Intimately connected with the subject of ventilation is that of the explosion of large quantities of powder in displacing the coal. The fumes thus liberated highly impregnate the air with carbolic oxide, or white damp, which is a most deadly gas. This spreading through the mine, viciates the air. It is obvious that in the counties of Stark, Jackson and Tuscarawas, where the thin veins are worked, that to dilute and render harmless the gases given off through the explosion of such large quantities of powder would require a most efficient system of ventilation. The current in many instances would be so rapid as to prevent the carrying of an open light. The natural and most available remedy for the baneful results to the miners from inhaling this poisonous gas would be to regulate the hours of shooting, so that the mine employes could withdraw to currents of fresh air while the blasting would be done. The department has attempted to establish such a rule, but owing to the installing of mining machines in many of the mines in which to operate them successfully it is claimed to be necessary to shoot at all hours, the efforts of the department have been only partially successful. It is believed that the application of drastic measures would be justifiable in order to break up this pernicious habit, and thereby improve the health of and the safety to the miners of the State.

For several years the department has been in receipt of complaints in regard to the excessive quantities of smoke created by the discharge of powder in the mines. These complaints have come not only from the District Mine Inspectors, but from operators and miners who assert that in addition to the great excess of smoke, the fumes are offensive and injurious to the health of those employed in the mines. Owing to the lack of appropriation with which to employ a chemist, and to the belief that the evil complained of was largely due to the employing of unskilled miners who use the powder in

excessive quantities, the matter was postponed until during the past year when complaints became so numerous that it was resolved to subject the several brands of powder manufactured to a chemical analyses. With this in view samples of the different powders were secured and were analyzed by Prof. N. W. Lord, of the Ohio State University, a copy of whose report is here attached.

TABLE SHOWING ANALYSIS OF SIX SAMPLES OF POWDER SECURED AT MINES IN DIFFERENT PORTIONS OF THE STATE.

Names of the powder manufacturers.	Hazard Powder Co.	The King Powder Co.	Miami Powder Co.	The Ohio Powder Co.	The Austin Powder Co.	Du Pont De Nemours & Co.
Moisture	0.79	0.80	0.85	0.77	0.57	1.21
Sodium nitrate.....	67.49	66.88	71.83	67.85	66.66	67.64
Potassium nitrate.....	3.33	6.33	1.40	3.71	4.54	2.46
Sulphur.....	12.34	12.21	10.43	12.05	12.18	11.91
Charcoal	16.05	13.48	15.49	15.62	16.05	16.78
Totals.....	100.00	100.00	100.00	100.00	100.00	100.00

Analysis made by Prof. N. W. Lord, Ohio State University.
September 15, 1899.

The uniformity of the ingredients as shown by the analyses suggested the desirability of a comparison with the formulae by which the powder was incorporated. The line of inquiry being prosecuted by the department was made known to the manufacturers and with it a request for permission to publish in connection with the article the formulae used in the manufacture of powder to be used in the mines.

The only response came from the King Powder Co., of Cincinnati, Ohio, who gave their formula as nitrate soda, 75 per cent.; sulphur, 10 per cent. and carbon, 15 per cent. It will be seen that the percentage of the several ingredients conform closely with the analyses as made by Prof. Lord of the Ohio State University. The representative states that this has been their formula for years. He feels warranted in the assertion that owing to their being able to secure material of greater purity than during former years, and by the aid of new and improved machinery, as well as the introduction of more skillful process by which the ingredients are more thoroughly com-

pounded, that more perfect combustion is secured. Hence it is his opinion that the powder in present use generates less smoke than that offered to the trade during former years.

A middle western manufacturer writing on the subject says that the preparation and incorporation of the ingredients is absolutely essential in order to secure a good quality of powder. He says that where a manufacturer uses inferior material and its ingredients are not thoroughly incorporated, the product will be a powder weak in explosive force, also one that will generate a large volume of smoke.

The representative of an eastern manufacturer writes that it is not so much in the material as it is the amount of work and the method by which they handled the material that gives quality to the powder.

A far eastern manufacturer gives as his experience that it is possible for two mills to use the same material and in exactly the same proportions and yet the product will be an entirely different powder. He says that at their mills they refine the nitrate of soda, thus removing the salt and other impurities. Nitrate of soda comprising three-fourths of the weight of the powder, the advantage of removing nine or 10 per cent. of foreign matter will be readily seen.

All powder manufacturers agree that merely mixing the three ingredients, viz.: Soda, charcoal and sulphur does not make good powder, and that there is a great difference between mixture and incorporation. They unite in the belief that first the material must be of good quality and that triturating them together for several hours is essential to insure a good article. Finally, thorough incorporation makes good powder.

**TABLE SHOWING THE AMOUNT OF POWDER CONSUMED IN THE
MINES OF THE STATE AND THE NUMBER OF TONS
OF COAL PRODUCED TO THE KEG.**

Counties.	Number of firms which reported.	Number of firms which did not report.	Tons mined by firms which reported.	Number of kegs reported as used.	Number tons mined to keg of powder used.
Athens	25	10	1,162,759	8,917	180.
Belmont	30	36	638,905	4,315	148
Carroll	15	11	247,291	4,913	50
Columbiana	34	14	785,711	6,188	127
Coshocton	8	10	223,312	2,328	96
Gallia	2	2	16,811	175	127
Guernsey	13	11	775,373	7,063	110
Harrison	19	45	16,441	199	83
Holmes	8	6	11,018	84	96
Hocking	12	4	854,415	6,972	123
Jackson	52	9	1,788,384	62,670	29
Jefferson	13	27	698,651	4,971	141
Lawrence	16	8	40,767	1,323	30
Mahoning	8	30	22,250	175	127
Medina	13		147,714	4,388	34
Meigs	27	2	170,566	2,912	59
Morgan	2		26,940	298	97
Monroe	1	4	2,400	12	200
Muskingum	45	72	155,924	3,770	41
Noble	18	21	54,290	561	97
Perry	45	23	1,505,028	18,964	79
Portage	1		75,851	2,207	34
Scioto	4	2	756	14	54
Stark	47	26	826,180	26,462	31
Summit	13		65,378	2,505	26
Trumbull		6	4,187	49	86
Tuscarawas	61	14	919,053	14,302	64
Vinton	8	6	82,613	2,019	41
Washington	3	3	1,274	15	85
Wayne	4	1	40,398	1,412	29
Totals	553	403	11,360,640	190,183	59½

OILS USED FOR ILLUMINATING PURPOSES IN THE MINES.

The baneful effects arising from smoke originating from the miner's lamp oil have given the department less trouble during the year than many of those preceding it. This is no doubt largely due to the increase in the air currents in the mines, and to the establishing by dealers of a more uniform basis of compounding to accord with the provisions of the law. Owing to changes in the personnel of the department it has been impossible to give the matter as much attention as in former years, but as no complaints have been received as to the oil generating smoke in excessive quantities, it is believed that the quality of oil used throughout the year has been fairly satisfactory.

DEVELOPMENTS.

The new mines reported during the year were confined to old and well defined coal fields. No new lines of railroads have been built into what has heretofore been nonproducing coal fields, neither have any new basins of coal been discovered during the year that has just closed.

OPINIONS OF THE ATTORNEY GENERAL.

Accidents appearing to be of minor consequence at the time, have proven to result fatally. Through negligence or ignorance of the law, the termination of a casualty was not reported to the department until after the unfortunate had been buried, when the question arose as to the necessity of exhuming the body in order to comply with the intention of the law, that of viewing the body. On August 4, of the past year, Alex Powell, while at work in the Bessie mine at Glen Ebon, in Athens county, was injured. He died on the 11th of the same month and was buried the following day without the formalities of an inquest. A controversy at once arose as to the necessity of exhuming the body. District Inspector Beattie referred the matter to the department, whereupon the following letter was sent:

August 13-98.

Hon. F. S. Monnett, Attorney General, Columbus, Ohio:

DEAR SIR: On August 4 Alexander Powell was injured while at work in the Bessie mine at Glen Ebon in Athens county. He died on the 11th inst. and was buried on the 12th. There having been no inquest held as is provided by sections 301 and 6871 Revised Statutes, I desire your official opinion in this case as to whether it is an imperative duty upon the coronor to exhume and view the body before taking the evidence.

Awaiting your early reply, I am,

Yours very truly,

R. M. HASELTINE,
Chief Inspector of Mines.

On the same date I received the following reply from the Attorney General:

OFFICE OF THE ATTORNEY GENERAL,
STATE OF OHIO,

COLUMBUS, OHIO, August 13, 1898.

Hon. R. M. Haseltine, Chief Inspector of Mines, Columbus, Ohio:

DEAR SIR: This department has the honor to receive a communication from you under date of August 13, stating that Alexander Powell was fatally injured at the Bessie mine in Athens county the 4th inst., that on the 11th inst. he died and was buried on the 12th, and that there had been no inquest held. You desire official opinion as to whether it is an imperative duty to exhume and view the body before taking evidence.

Section 301, Revised Statutes, and section 6871, Revised Statutes, seem to be special statutes governing this subject matter, relating particularly to fatalities in the mines. These statutes should be construed as an exception to the general statutes governing coroners in the event they in anywise conflict therewith. So much of section 301 as is pertinent to your inquiry, provides that "every person having charge of any mine, whenever loss of life occurs by accident connected with the working of such mine * * * shall give notice thereof forthwith * * * to the coroner of the county in which said mine is situate, and the coroner shall hold an inquest upon the body of the person or persons whose death has been caused and inquire carefully into the cause thereof, and shall return a copy of the finding and of the testimony of the chief inspector."

Section 6871, so far as relates to this subject matter requires notice to the coroner of the county in which such mine is situate, wherein such accident has occurred, and any such coroner who neglects or refuses to hold an inquest upon the body of the person whose death has been thus caused, and to return a copy of the finding and of the testimony, shall be fined not less than \$50, etc.

The purpose of these two statutes seems to be something more than is required, or at least is sought to be obtained by the coroner's inquest under the general statutes. Under the latter, the law seems to contemplate taking such necessary data in connection with the fatality, accident or sudden death as will enable the authorities to ferret out any crime that may be connected therewith. Under the mining statute it seems to contemplate perhaps all of this and more, viz.: To furnish protection to the administrator and heirs of the decedent if the accident be caused by negligence on the part of the company to afford them a civil remedy in damages, and on the other hand to likewise protect the company against imposition by suit for damages where there has been contributory negligence on the part of the decedent. Looking at these propositions I would hold that you would not be compelled to exhume the body. In order to hold a coroner's inquest in the case suggested that "an inquest upon the body of the person" within the meaning of the statute, would be for you to examine the witnesses that had actual information of the cause of the death, and having thus taken all the testimony, if there is no dispute as to the nature of the injury or cause of the death, or in other words,

if you can fully investigate the matter without actual view of the body, the statute has been complied with. However, in cases where there is a dispute as to either the cause or the nature of the fatal wound that could not be ascertained by oral testimony of actual eye witnesses, and it could be cleared up by an actual view of the body, and that is the only way in which it could be satisfactorily demonstrated to the coroner, then of course the body should be exhumed. In other words, it is only where it is necessary to settle a disputed point that a law would require such proceedings as suggested. Where the same evidence can be secured without exhuming the body, the statute would not require it, because it does not require a vain thing to be done.

Respectfully submitted,

F. S. MONNETT,
Attorney General.

Since the enactment of April 21, 1898, amending section 302, many contentions have arisen in regard to the employment of children under 15 years of age in and about the mines. This section conflicts with the section of the Revised Statutes relating to the laws governing schools. This matter was taken up by the Hon. L. D. Bonebrake, Commissioner of Schools, who referred the matter to the Attorney General, from whom he received the following reply:

OFFICE OF THE ATTORNEY GENERAL,
STATE OF OHIO,

COLUMBUS, September 16, 1898.

Hon. L. D. Bonebrake, Commissioner of Common Schools, Columbus, Ohio:

DEAR SIR: Complying with your personal request for a legal construction of section 4022-2 of the Revised Statutes of Ohio, and section 1 of what is commonly known as the Davis law, passed April 19, 1898, 93 O. L., p. 123, this office begs leave to submit the following opinion:

As you will observe, there is a specific repeal of part of section 4022-2, in that the Davis law repeals section 6986aaa, which is incorporated in and made a part of section 4022-2. If this were all, the other part of the section would stand. But the age at which children can be employed has, as you will notice, been changed from 14 to 15 years, and there is such a repugnancy between the two acts as to preclude their being reconciled so as to permit giving effect to both acts. Therefore, under the rule of construction that where it is necessary to hold an earlier statute impliedly repealed by a later one, on account of the conflict between them, we hold that section 1 of the Davis act repeals section 4022-2. The extent of the repeal being measured by the extent of the conflict or inconsistency between the acts, and the above sections being the only ones that conflict, the balance of the compulsory education law remains in force. The intention of the Legislature that the remaining sections of the education law should stand, is, we believe, manifest, for the Davis act charges the Inspector of Workshops and Factories with the duty of

prosecuting all violations of the law and confers upon the chief and district inspectors the same authority and power to enforce the law as is invested in the truant officer, to compel school attendance. We would, therefore, advise you to follow the Davis law in so far as it repeals the education act.

Respectfully submitted,

GEO. C. BLANKNER,
Assistant Attorney General.

It will be noted that but few occasions have arisen during the year requiring the opinion of the Attorney General.

CONDITION OF LABOR.

The base price for pick mined coal in the Hocking Valley field that was agreed upon September 11, 1897, remained at 56 cents per ton until April 1, 1898, when by mutual agreement it was advanced to 66 cents per ton, where it remained at the close of the past year. The establishing of the base scale for mining in the Hocking Valley furnished a basis upon which the price of mining, whether by machine or by the pick, could be established in the other fields of the State, thus removing the danger of a general strike or lockout. It is gratifying to report that, with the exception of a few local contentions, the relation between the miners and operators has been without friction throughout the year.

The prolonged contest that was in force at the Kelly coal mine at Portland Station in Jefferson county at the close of the past year, continued into the present one. The company finally equipped the mine with machines and resumed operation on the machine basis about the middle of July.

About the 1st of April the miners of the Massillon district held a meeting and demanded a change in the screens of that region so that they would conform with the Chicago agreement. After an idleness of a little more than a week the screens were reduced to 1½-inch spaces, and there was no further trouble in that district during the year.

Early in the month of April the miners in the Jackson county field struck for a readjustment of the scale, especially that relating to day labor. This contest continued until about the middle of May, when it terminated adversely to the miners.

In the Palmyra district the miners came out for an advance, which was granted them, the company paying 73½ cents per ton. This is an advance of 10 cents and established a differential of 7½ cents between the Palmyra and the Massillon districts.

At the Bessie mine in Athens county a suspension occurred in February which lasted until the last of June. During this time some malicious person entered the mine and with a sledge destroyed three of the company's mining machines.

During the month of May there was a contest of several days' duration at the Dillon and Long Run mines in Jefferson county, growing out of the discharge of some union miners. Again in October of 1898 there was a suspension on account of the refusal of the operators to discharge men who declined to allow the dues to the organization to be checked from the company's books. This was finally settled, the company maintaining the right to retain their men whether they allowed their dues checked off or not.

It will be seen that the conducting of the industry was carried on with much less than the usual amount of friction, and is another proof of the many advantages derived from the recognition of organized labor.

APPOINTMENTS.

In the Sixth District, which embraces the counties of Wayne, Stark and Tuscarawas, there are 195 mines. Of this number 74 are large and 121 employ less than 10 men and are rated as small mines. It has been a rule of long standing in the department that the labor of inspecting three small mines is equal to that of one large one, thus it will be seen that this district contains the equivalent of 114 large mines. To this district Mr. John P. Jones was appointed District Inspector on July 15, 1892, and was reappointed on July 15, 1895. Having been elected a member of the 73d General Assembly, he tendered his resignation to take effect on December 31, 1897, whereupon on January 17, 1898, with your Excellency's approval, Mr. Wm. K. Moore, of North Lawrence, Stark county, was appointed as his successor to serve out the term which terminated on July 15 last, when he was reappointed for a term which will end on July 15, 1901.

In the Fifth District, which is composed of the counties of Harrison, Jefferson, Carroll and the southern half of Columbiana, there are 37 large and 134 small mines, the equal of 81 large mines. Mr. Thos. H. Love, who was appointed on July 15, 1892, and reappointed on May 1, 1894, was permitted to serve until February 15, 1898, when Mr. James P. Davis, of Dell Roy, Carroll county, was appointed to serve out the term which will expire on April 30, 1900.

In the Third District, which contains the counties of Perry, Muskingum, Morgan and Noble, there are 66 large and 229 small

mines, equaling 142 large mines. For the past six years this district has been in charge of Mr. Robert H. Miller, of Shawnee, whose term having expired, Mr. David B. Wilson, of Corning, Perry county, was appointed on July 15, 1898, his successor to serve until April 30, 1900.

In the Second District, composed of the counties of Athens, Washington, Meigs, Gallia and Lawrence, there are 57 large and 108 small mines, which equals 91 large mines. This district for the past six years has been in charge of Mr. Alexander Beattie, of Nelsonville, whose term having expired on July 15, Mr. Lucius W. Hull, of Glouster, was appointed his successor for a term of three years, which will terminate July 15, 1901.

Of the retiring inspectors it can be truthfully said that they performed their duties fearlessly and honestly to the full and entire satisfaction of the mining department. By the retirement of these gentlemen the department lost the experience of four excellent officers whose term of office had fitted them to a high point of efficiency. The State was thus the loser by their retiring from its service. In the appointment of their successors the selection seems to have been a wise one. All entered upon the discharge of their duties with commendable zeal and caused but little delay in the taking up of the work where their predecessors had laid it down, and it is believed that the department suffered as little as possible by reason of the change.

As a record of ready reference the following table has been prepared to show the appointments since the creation of the department:

APPOINTMENTS SINCE THE CREATION OF THE DEPARTMENT.

Name of inspectors.	County.	Governor by whom appointed.	Term began.	Term expired.	Time served.	Remarks.
<i>Chief inspectors.</i>						
Andrew Roy.	Trumbull	Wm. Allen, D	April 6, 1874	April 6, 1878	4 years	Resigned.
Jas. D. Poston, D.	Hocking	R. M. Bishop, D	" 6, 1878	Nov. 15, 1879	1 yr. 7 mos	Not confirmed by Senate.
David Owens, D	Trumbull	"	Nov. 15, 1879	Feb. 12, 1880	3 months	
Andrew Roy, R	Jackson	Chas. Foster, R	Feb. 12, 1880	" 16, 1884	4 years	Resigned.
Thos. B. Bancroft, D.	Gallia	George Hoadly, D	" 16, 1884	April 1, 1888	4 yrs. 1½ mos	
Rob't M. Haseltine, R	Mahoning	J. B. Foraker, R	April 1, 1888	" 30, 1888	1 month	Reappointed.
"	"	"	May 1, 1888	" 30, 1892	4 years	Reappointed.
"	"	W. McKinley, Jr., R	" 1, 1892	" 30, 1896	4 "	Incumbent.
"	"	Asa S. Bushnell, R	May 1, 1896	April 30, 1900	4 "	
<i>District inspectors.</i>						
Jacob J. Klein, R	Stark	Chas. Foster, R	June 4, 1881	Jan. 26, 1883	2 yrs. 7½ mos	Resigned.
Jno. P. Williams, R	Trumbull	"	Jan. 26, 1883	Feb. 16, 1884	1 yr. 21 days	
Austin P. King, Jr., D	Columbiana	George Hoadly, D	Feb. 16, 1884	April 30, 1886	2 yrs. 2½ mos.	Resigned.
Wm. Dalrymple, D.	Athens	"	May 1, 1884	Mar. 1, 1888	3 yrs. 10 mos.	Resigned, held over as no appointment was made at the expiration of his term, May 1, 1887.
Wm. A. Davis, D.	Guersey	George Hoadly, D	May 1, 1884	Feb. 15, 1886	1 yr. 9½ mos.	Resigned.
Joseph L. Morris, R.	Coshocton	J. B. Foraker, R.	Feb. 15, 1886	June 1, 1889	3 yrs. 2½ mos	
D. J. Harry, R	Jackson	"	April 1, 1888	April 30, 1888	1 month	Reappointed.
David E. Evans, R	Meigs	"	May 1, 1888	" 30, 1891	3 years	
Jas. W. Haughee, R	Athens	"	" 1, 1888	" 30, 1891	3 "	
Robert Bell, R	Stark	"	" 8, 1886	" 30, 1887	11 mos. 23 da.	Reappointed.
"	"	"	" 1, 1887	" 30, 1888	1 year	Reappointed.
"	"	"	" 1, 1888	Aug. 11, 1890	2 yrs. 3mo. 11d	Resigned.
Ebenezer Lewis, D	Summit	Jas. E. Campbell, D.	Aug. 11, 1890	April 30, 1901	8 mos. 20 da	Reappointed.
"	"	"	May 1, 1891	" 30, 1894	3 years	

APPOINTMENTS SINCE THE CREATION OF THE DEPARTMENT—Continued.

Name of inspectors.	County.	Governor by whom appointed.	Term began.	Term expired.	Time served.	Remarks.
<i>District inspectors—Continued.</i>						
Thos. H. Love, R.	Carroll	J. B. Foraker, R.	June 1, 1880	Aug. 1, 1891	2 yrs. 2 mos.	Reappointed.
"	"	Wm. McKinley, Jr.	July 15, 1892	April 30, 1894	3 years	Reappointed.
"	"	Wm. McKinley	May 1, 1894	Feb. 15, 1898	3 yrs. 9 $\frac{1}{2}$ mos.	
Wm. B. Rennie, D	Tuscarawas	Jas. E. Campbell	Aug. 1, 1891	July 15, 1892	11 mos. 15 da.	Resigned.
John E. Short, D	Hocking	"	May 1, 1891	May 7, 1894	3 yrs. 7 days.	
A. P. McDonald, D	Perry	"	May 1, 1891	July 15, 1892	1 yr. 2 $\frac{1}{2}$ mos.	Resigned.
Wm. H. Turner, D	Guernsey	"	"	April 30, 1894	3 years	
Jas. W. Haughee, R.	Athens	Wm. McKinley, Jr.	June 17, 1892	June 28, 1892	Appointment	made to take effect on July 15.
Robt. H. Miller, R	Perry	"	July 15, 1892	April 30, 1894	Resigned before entering on his duties.	
Alex Beattie, R	Athens	Wm. McKinley	May 1, 1894	July 13, 1898	1 yr. 9 $\frac{1}{2}$ mos.	Reappointed.
John P. Jones, R	"	Wm. McKinley	July 15, 1892	" 15, 1895	4 yrs. 2 $\frac{1}{2}$ mos.	
"	"	Wm. McKinley	" 15, 1895	" 15, 1898	3 years	Reappointed.
John P. Jones, R	Stark	Wm. McKinley, Jr.	" 15, 1892	" 15, 1895	3 years	
"	"	Wm. McKinley	" 15, 1895	Dec. 31, 1897	2 yrs. 5 $\frac{1}{2}$ mos.	Reappointed.
Sa'uel Llewellyn, R.	Jackson	"	May 9, 1894	May 21, 1897	3 yrs. 12 da.	Reappointed.
"	"	Asa S. Bushnell	" 21, 1897	April 30, 1900	2 yr. 11 m. 9d.	Incumbent.

APPOINTMENTS SINCE THE CREATION OF THE DEPARTMENT—Concluded.

Name of inspectors.	County.	Governor by whom appointed.	Term began.	Term expired.	Time served.	Remarks.
<i>District inspectors—</i>						
<i>Concluded.</i>						
Thomas McCough.	Belmont	Wm. McKinley.	May 1, 1894	April 30, 1897	3 years	Reappointed.
"	"	Asa S. Bushnell	" 1, 1897	" 30, 1900	3 years	Incumbent.
Rees T. Davis	Columbiana	Wm. McKinley	" 1, 1894	" 30, 1897	3 years	Reappointed.
"	"	Asa S. Bushnell	" 1, 1897	" 30, 1900	3 years	Incumbent.
William K. Moore	Stark	"	Jan. 17, 1898	July 15, 1898	6 months	Reappointed.
"	"	"	July 15, 1898	" 15, 1901	3 years	Incumbent.
James P. Davis	Carroll	"	Feb. 15, 1898	April 30, 1900	2 yr. 2 mo. 15 d.	Incumbent.
Lucius W. Hull	Athens	"	July 15, 1899	July 15, 1899	1 year	Resigned.
David B. Wilson	Perry	"	" 15, 1898	April 30, 1900	1 yr. 9 mo. 15 d.	Incumbent.
David H. Williams	Athens	"	" 15, 1899	July 15, 1901	2 years	Incumbent.

MINE MAPS.

From the creation of the department the help provided in the office has been insufficient to keep the files of maps complete, indeed during the early years of the department the Chief Inspector was allowed no assistance in the office whatever. As a consequence, in addition to his correspondence, his duties in the field more than occupied his time. My immediate predecessor was allowed a clerk only a portion of each year during his term. Upon my assuming charge of the department in 1888 the inspection force was increased from three to five. This so added to the office work that the entire time of a clerk was required in recording the work of the inspectors. It was found impossible for the office force to take it up, and the securing of mine maps was temporarily assigned to the care of the district inspectors. In this way the matter drifted along, mines were annually being worked out and abandoned without a survey and map, while in other cases the maps were either destroyed or lost. Thus the work was permitted to accumulate, until during 1895, when, with the aid of a stenographer, the matter was taken up. It then developed that many of the so-called maps were poorly executed, and as a record they were of no value. In some instances the inspectors were deceived by the assurance of mine managers that a complete map was in existence, but at the time was not at hand. Again, the inspectors not being skilled in that line of work failed to detect the errors and omissions which destroyed a map's usefulness as a record.

With a view of securing a full and complete line of maps, a schedule setting forth what a map must exhibit, how it must be drawn, etc., was prepared and furnished to operators and engineers. Even then many maps were found to be so incomplete as to require their return, in some cases this was necessary two or three times. Thus the work went on, when, at the close of the year 1896, 188 mine maps were found to have been added to the list. During 1897, 178 more were filed, and during the year of 1898, 119 were received, thus making a total of 579 maps now on file in the department.

Inquiries have developed the impossibility of securing maps of 46 mines, and there are 99 mines on the list which are reported as not coming within the requirements of the law. The returns at the close of the year show that there are 889 mines in the State, of which no maps have been filed. From this number there can no doubt be

deducted a number of small mines, which do not come within the confines of the law. Again, it is possible that in some instances by the continuous operating of mines opened to supply local demand, they have expanded until they embrace the requisite area to bring them within the provisions of the law. It is equally probable that through neglect or careless mining the work has been permitted to fall in and the extent is not obtainable. Hence it will be seen that owing to the constant change going on in the mines that to keep a record of those that are amenable to the law as well as to secure the extension of the maps that have been placed on file is a most difficult undertaking.

TABLE DESIGNED TO EXHIBIT THE NUMBER OF MAPS THAT HAVE BEEN FILED, THE NUMBER STILL UNFILED, THOSE THAT CANNOT BE SECURED, AND THOSE REPORTED AS NOT COMING WITHIN THE PROVISIONS OF THE LAW, AS THEY OCCUR IN EACH COUNTY IN THE STATE AT THE CLOSE OF THE YEAR.

Counties.	Maps filed.						Number of mines to be mapped.	Number of maps.		
	Prior to 1884.	Prior to 1888.	Prior to 1897.	During 1897.	During 1898.	Total number.		To be filed.	Impossible to secure.	Reported not under the law.
Athens	10		28	23	10	71	109	93	3	12
Belmont	6		8	17	10	41	97	84	1	17
Carroll		2	5		6	13	27	20	8	1
Columbiana	12	1	8	23	6	50	63	54		4
Coshocton			3	5	4	12	26	22	2	1
Gallia			1	1		1	2	2		
Guernsey	2		4	7	1	14	27	24		3
Harrison				1	1	2	6	4		1
Holmes							5	5	1	4
Hocking	1	3	12	8	3	27	32	29	1	
Jackson	1		8	15	22	46	84	62	6	7
Jefferson	2		7	10	1	20	33	32		
Lawrence	3		4	2	2	11	36	33		13
Mahoning	4		13	7	2	26	37	34	1	1
Medina	1	2	5	1	3	12	17	14		
Meigs	6		8	6		20	20	20		
Morgan			1	1		2	2	2		
Monroe										
Muskingum			4	6	7	17	56	47	3	11
Noble		1			1	2	6	5	1	2
Perry	10		17	18	13	58	109	93	5	3
Portage			4		1	5	7	6		
Scioto				1	1	2	2	1		
Stark	7		21	11	15	54	96	73	6	7
Summit	3	1	7	2		13	18	18	1	1
Trumbull	10	1	10	2		23	32	30	2	1
Tuscarawas	1	1	10	6	7	25	67	57	4	5
Vinton	2			2		4	14	14		
Washington							2	2	1	
Wayne	1		1	3	3	8	12	9		
Totals	82	12	188	178	119	579	1,044	889	46	99

THE SEALING OF OIL AND GAS WELLS.

The Seventy-third General Assembly passed an act known as House Bill No. 435, which was enacted with a view of protecting the lives of the persons employed in the coal veins which overlie the oil and gas fields of the State. This law provides that all oil and gas wells, which have pierced any coal vein upon their abandonment, must be thoroughly sealed, and that a member of the department must be present to make a record of the act. It also requires the owner, agent or lessee to have a map made of the territory whereby the location of all gas and oil wells shall be shown. The law went into force on April 23, 1898, and immediately copies of it were sent to the representatives of all the oil and gas companies, as far as known, who were operating within the limits of the coal-bearing measures.

The greater portion of the seven months from the passage of the act until the close of the year was occupied by the members of the department in familiarizing themselves with the oil fields of the State and the method of drilling and casing the oil and gas wells. The oil fields being new, but few wells became exhausted up to the close of the year. Of those that were sealed, seven were in the Corning field, one in the Scio and one each in the Jewett and Gould field. The greatest number of wells that have been sealed in the Corning field were those which passed through either active or abandoned coal mines. In these wells the lowest plug has been set above the gas bearing rock upon which from 30 to 50 feet of material has been placed, into which the second plug has been forced. In many cases the well have been filled to different depths with the drillings.

In the Scio field the first gas is found at or near the oil rock, which is usually at a depth of from 1,100 to 1,200 feet. The water is usually cased off at a depth of from 600 to 800 feet, and the lower coal measures are found at a depth of about 400 feet. It has been the custom to set the first plug from 50 to 100 feet below the casing, on the top of which from 30 to 50 feet is filled with cement and sand. Into this the second plug is driven, on top of which the well is often filled to various depths.

The experience of the department so far warrants the belief that in the past little or no attention has been paid to the law of the Seventieth General Assembly, passed February 9, 1893, hence it is

that the enforcement of the later law will preserve the oil wells from being dissipated by the ravages of salt water, and for this reason it is met with great favor by the legitimate oil operators who are assisting the department in seeing that its provisions are enforced.

It has been learned that there are a large number of irresponsible persons and companies securing options on territory and drilling wells, which are known as "wildcat wells." Failing to meet with success, they pull out their casing and move to other parts of the State without complying with the law. It is difficult to locate this class of operators, and it is possible that many wells will in this way escape being properly sealed. Unless their location is determined by a map there is grave possibility that serious calamities may overtake those engaged in future mining operations.

The requirements of the law in regard to the filing of maps in but few instances have been complied with. This is largely due to the desire of the operators to postpone the work until their territory had been fully developed, and possibly there are cases where there is a disposition on the part of the oil operators to evade the law. This will continue until the land owners become aware of the fact that they will be held responsible for the neglect of persons to whom the lease has been granted. It is to be hoped that by the close of the coming year the work will have become systematized, and that a compliance with the law will be well under way.

REPORT OF THE FIRE CLAY INDUSTRY DURING THE YEAR OF 1898.

The year opened as it closed with very little buying of the products manufactured from our clays. The general revival during the year in all lines of manufacture has also been enjoyed by those engaged in the fire clay industry. In collecting the statistics, owing to the working of large bodies of shale in some localities in connection with the deposits of clay, it is found necessary to include all clays, except the ordinary yellow, which is only adapted to the manufacture of common brick and ordinary drain tile.

The list of counties reporting remains the same as during the year of 1897. In time worked, the average is found to have been 171 days, a gain of 31 days as compared with the previous year. Of the 18 counties making return gains are reported in all but Columbiana, Jefferson, Perry, Stark and Wayne, which return slight losses. There were 724 miners employed during the year, which is a gain of

68; 2,657 persons were engaged in the manufacture of wares. This is a loss of 660 as compared with the year of 1897.

There were 1,026,922 tons of clay mined, an amount exceeded but three times in the State's history. This is a gain of 204,195 tons as compared with 1897. Gains are reported from 12 counties in the list, Columbiana, Muskingum and Summit being the most conspicuous. Losses are reported from six counties, Trumbull and Tuscarawas being the most prominent.

In regard to clay purchased, 30,980 tons are reported. This was consumed in nine counties, the greatest being in Perry, Hocking and Summit. It is seen that the average production of each miner was 8 $\frac{1}{4}$ tons for each day that the mines were in operation.

From the second table it will be seen that since the amendment to the mining law in 1884, losses in annual production have occurred during six of the 14 years, five of which preceded the one that has just closed. Of the eight years which show gains, the amount of increase during the past year has been exceeded but twice, namely, during 1890 and 1891, which were years of unusual prosperity.

TABLE SHOWING THE FIRE CLAY OUTPUT OF THE STATE DURING THE YEAR 1888 AS COMPARED WITH 1887.

[illegible]

**TABLE SHOWING THE FIRE CLAY PRODUCTION OF THE
FROM JANUARY 1, 1884, TO DECEMBER 31, 1898.**

Years.	Output tons.	Gain.	L.
1884.....	168,208		
1885.....	153,756		
1886.....	266,709	112,953	
1887.....	366,476	99,767	
1888.....	471,794	105,313	
1889.....	574,129	102,335	
1890.....	833,159	259,030	
1891.....	1,087,560	254,401	
1892.....	1,253,110	165,550	
1893.....	1,032,348		2
1894.....	942,913		
1895.....	844,832		
1896.....	827,450		
1897.....	822,727		
1898.....	1,026,922	204,195	

**PRODUCTION OF IRON ORE IN THE STATE DURING
YEAR.**

Unparalleled consumption has been the marked character of the iron trade during the year just closed. The hopes and expectations of the trade, however, for a considerable advance in production was not realized, this result being attributable no doubt to the preparation by producers to meet a demand anticipated to be the greatest in years.

The year opened with a month of larger buying than any January in the history of the trade. During the following two months prospects of war seemed to retard buying, but this was offset somewhat by the government demand on certain works. Later possibilities failed to influence buying, and after war was declared orders were booked with even more vigor than before. The close of the war added another stimulus to the iron trade resulting in the placing of many orders. Railroads brought some of the fruits of their prosperity to the iron trade toward the latter part of the year, the last week in November being especially marked in this part. The year closed with great activity in every line and the market the strongest of the year.

The first table, which accompanies this article, is designed to show the output of the State by counties for the year of 1898 compared with 1897. From the table it is observed that the production for the year of 1898 is 51,659 tons, as against 50,267 tons

ported in 1897, a gain of 1,392 tons. Of the three counties reporting a production, Jackson and Lawrence show gains aggregating 6,864 tons, while Scioto appears with a loss of 5,472 tons.

The second table exhibits the iron ore production of the State from 1884 to 1898 inclusive. A glance at this table suffices to show how steadily the production has decreased, the hematite ore having dropped from 289,500 tons reported in 1887 to 51,659 tons in 1898, while the black-band ore has ceased to be mined during the last five years.

TABLE SHOWING THE PRODUCTION OF IRON ORE BY COUNTIES DURING THE YEARS 1897 AND 1898 AND THE GAIN AND LOSS IN EACH COUNTY.

Counties.	Hematite 1897.	Hematite 1898.	Gain.	Loss.
Jackson.....	7,217	9,500	2,283	
Lawrence.....	20,270	24,851	4,581	
Scioto.....	22,780	17,308		5,472
Totals.....	50,267	51,659	6,864	5,472

TABLE SHOWING THE IRON ORE PRODUCTION OF THE STATE FROM 1884 TO 1898 INCLUSIVE.

Years.	Black-band.			Hematite.			Total.
	Output tons.	Loss.	Gain.	Output tons.	Loss.	Gain.	
1884.....							276,286
1885.....	70,931			188,646			259,577
1886.....	83,947		13,012	260,537		71,891	344,484
1887.....	87,965		4,018	289,500		28,963	377,465
1888.....	82,054	5,911		171,298	118,202		253,352
1889.....	70,398	11,656		182,011		10,713	252,409
1890.....	41,848	28,550		127,240	54,771		169,088
1891.....	15,540	26,308		52,444	74,796		67,984
1892.....	8,680	6,860		81,042		28,598	89,722
1893.....	3,837	4,843		64,423	16,619		68,260
1894.....		3,837		58,043	6,380		58,043
1895.....				93,051		35,008	93,051
1896.....				70,765	22,286		70,765
1897.....				50,267	20,498		50,267
1898.....				51,659		1,392	51,659
Totals...	465,204	87,965	17,080	1,740,926	313,552	176,565	2,482,416

THE YEAR'S PRODUCTION OF LIMESTONE.

The limestone production for the year has been arranged to accord with the several classifications into which the product is prepared for the market. The first table, in addition to the customary units by which it is computed, also exhibits the average time the quarries were in operation during the year and the number of persons engaged in the industry.

The second table exhibits the gain and loss in production as compared with the previous year in the several counties in which quarrying is carried on.

By the third table will be seen the total annual production of each classification during each of the years of which a record has been kept.

By the first table it will be noticed that 41 counties reported, as compared with 44 during 1897, 39 during 1896 and 38 during 1895. The counties omitted from the list of the preceding year are Belmon Jackson and Noble.

The average time worked is given as 132 days as compared with 131 during 1897. Three thousand one hundred and forty-nine persons were engaged in the industry as compared with 3,398 in 1897, 3,186 in 1896 and 3,829 in 1895. Gains are reported in nine counties, Adams, Greene, Ottawa and Wood furnishing 77 per cent of the year's list. Losses occur in 28 counties, Allen and Hard counties being the only ones of prominence.

The production of stone burned for lime is given at 626,921 tons a gain of 145,050 tons as compared with 1897. Of the 20 counties turning gains, Ottawa and Delaware are the only ones of striking prominence. Fourteen counties return losses, Marion and Hardin turning more than all the rest.

Under stone used for fluxing it is seen that the year's production amounted to 571,029 tons, a gain of 250,592 tons when compared with the previous year. Gains are reported in six counties, 88 per cent of which is returned from Ottawa, and losses occur in eight counties.

The returns under dimension stone, which is reckoned by the cubic foot, are found to be 631,356 cubic feet. Reports of this variety were received from 22 counties, the greatest production occurring in Erie and Ottawa. In 15 counties gains occurred amounting to 448,311 cubic feet, while in 13 counties losses aggregating 214,845

cubic feet are found. This makes the net gain over the preceding year 233,431 cubic feet.

By consulting the column under ordinary building stone it is seen that returns were received from 34 counties, amounting in the aggregate to 368,343 cubic yards. Gains are reported in 23 counties, Erie, Ottawa and Miami being most conspicuous. Losses amounting to 33,382 cubic yards occurred in 12 counties, none of which is prominent. The year's returns show an aggregate gain of 119,951 cubic yards.

An examination of the returns of stone used for piers and protection purposes reveals the fact that the year's production amounted to 47,762 cubic yards, which is a loss of 49,786 cubic yards, as compared with 1897. The returns exhibit that this variety of stone was prepared in 21 counties, in none of which was the amount marketed especially great. Of the list 18 counties reported small gains, while from nine counties losses were reported, the greatest being from Ottawa.

In the column devoted to flagging it is found that returns were received from 18 counties, which give a total of 71,606 square feet. This is a loss of 73,725 square feet, as compared with the preceding year. This occurred in 15 counties. Gains amounting to 25,406 square feet are reported in nine counties.

Under paving it is observed that the year's production amounted to 43,256 square feet. This was produced in nine counties, 50 per cent. originating in Allen and Clark counties. As compared with the preceding year losses appear amounting to 98,433 square feet, which occur in 16 counties, and gains aggregating 28,664 appear in seven counties. The net loss during the year is found to be 69,769 cubic feet.

The returns for lime quarried for curbing show a production of 52,940 lineal feet. This originated in 16 counties, of which Miami is the only one of prominence. As compared with the preceding year losses amounting to 24,823 cubic feet are found in eight counties, and gains amounting to 22,595 feet are reported from 11 counties. The loss as compared with 1897 amounts to 2,228 lineal feet.

From that part of the table devoted to ballast and macadam it is seen that returns were made from 33 counties. Gains under this classification amounting to 186,990 cubic yards appear in 17 counties, and losses aggregating 86,138 cubic yards occur in a like number of counties. The year's increase is found to be 100,852 cubic yards.

With the view of securing an opinion as to the condition of the trade during the year, inquiries were enclosed in the limestone blanks asking of the producers an expression as to the condition of the industry. These questions met with widely varying replies; 300 operators made returns for the year of 1898, and of this number, 233 replied to the interrogatory, 75 expressed the belief that business was better, 12 that it was good and 67 thought it about the same. Four said they thought it had improved, and a like number that it averaged with the previous year, six said it was fair, 50 that it was not so good as 1897, nine that business had decreased and seven that it was poor. The variety of replies were about as great in one portion of the State as in another, and are in accord with the year's returns, which show that of the nine classifications five made gains, while four report losses.

PRODUCTION OF LIMESTONE IN OHIO DURING 1888.

Counties.	Average number of days worked.	Number of men employed.	Number of tons of lime each burned for lime.	Number of tons of 2000 pounds each burned for fluxing.	Cubic feet of dimension stone.	Cubic yards of ordinary building stone.	Cubic yards for piers and protection purposes.	Square feet of flagging.	Square feet of paving.	Lineal feet of curbing.	Cubic yards of ballast and macadam.
Adams.	70	102	1,100			388	180	1,100	2,700	1,700	1,905
Allen.	125	138	2,702			17,270	270	13,500	10,000		60,541
Butler.	117	15				3,119	2,250				80
Clark.	186	119		7,000	4,280	11,010	200	108	13,011	353	8,423
Clermont.	11	22	27,978			1,501		500	1,000	3,610	895
Crawford.	120	7	292			1,200	617	552			
Clinton.	84	33	3,340			1,103					
Delaware.	102	57	69,658			3,822					
Durke.	155	8	688	315	30,100	200				1,077	
Erle.	168	250	71,781	128,289	151,400	50,735		3,400			10,100
Franklin.	157	123	105	62,056	72,300	22,001	1,519	2,300	1,500	400	97,023
Greene.	106	70	60,000		2,500	5,771	2,250	300	1,900		15,000
Hamilton.	123	157			1,000	20,801	200				23,640
Hancock.	113	100	11,250			4,788					37,462
Hardin.	101	61	418			2,437					80,100
Highland.	95	65	5,017		10,805	1,788	4,016	6,784	6,682	1,300	26,686
Holmes.	31	15				100				1,450	200
Harrison.	161	88		60,565			3,000				4,000
Lawrence.	104	17	10		14,400	6,108	3,000			600	700
Lucas.	138	12			250	1,716					1,000
Marion.	211	295	80,275	28,501	800	15,050	1,510	600			5,944
Miami.	177	122	8,863	5,800	7,100	61,050	2,000	280	750	7,000	181,081
Montgomery.	120	102	10,940		61,228	61,407	8,402	10,684		10,583	17,984
Muskingum.	81	8	720		0,275	15,407	1,657	1,240		10,000	20,418
Norver.	298	5	82			712					1,040
Ottawa.	216	555	228,816	251,813	102,457	44,116	6,212				4,098

TABLE SHOWING THE COMPARATIVE GAIN AND LOSS, ETC.—Concluded.

Counties.	No. of days worked.		No. of men employed.		Tons of 2,000 pounds each burned for lime.		Tons of 2,000 pounds each burned for fluxing.		Cubic feet of dimension stone.		Cubic yards of ordinary building stone.		Cubic yards for piers and protection purposes.		Square feet of flagging.		Square feet of paving.		Lineal feet of curbing.		Cubic yards of ballast and macadam.	
	Gain.	Loss.	Gain.	Loss.	Gain.	Loss.	Gain.	Loss.	Gain.	Loss.	Gain.	Loss.	Gain.	Loss.	Gain.	Loss.	Gain.	Loss.	Gain.	Loss.	Gain.	Loss.
Pickaway.	60	18	33	33	8,087	3,623	100	12	8,000	200	1,345	610	6,022	150	571	1,106	2,000	9,080	2,835	19,000	9,080	
Pike.	32	32	11	11	7,803	8,700	100	228	2,077	1,345	610	6,022	14,400	84,250	800	2,000	1,541	4,400	1,541	4,400		
Putnam.	32	32	11	11	7,803	8,700	122,340	1,185	3,045	858	8,846	1,000	8,284	500	200	10,443	11,541	2,181	8,6184	100,952		
Schenck.	13	13	5	5	7,002	7,002	1,733	25	100	340	585	1,700	1,978	35,382	25,367	75,173	25,106	90,131	28,001	106,133	22,545	
Schoharie.	17	17	82	82	3,315	6,928	2,500	2,500	283,131	211,840	133,333	33,382	35,367	75,173	25,106	90,131	28,001	106,133	22,545	21,823	194,000	
Union.	126	126	11	11	3,315	6,928	2,500	2,500	283,131	211,840	133,333	33,382	35,367	75,173	25,106	90,131	28,001	106,133	22,545	21,823	194,000	
Van Wert.	576	794	233	233	100,501	31,511	418,311	211,840	133,333	33,382	35,367	75,173	25,106	90,131	28,001	106,133	22,545	21,823	194,000	8,6184	100,952	
Wood.	248	248	240	240	145,650	250,562	283,131	211,840	133,333	33,382	35,367	75,173	25,106	90,131	28,001	106,133	22,545	21,823	194,000	8,6184	100,952	
Wyandot.	248	248	240	240	145,650	250,562	283,131	211,840	133,333	33,382	35,367	75,173	25,106	90,131	28,001	106,133	22,545	21,823	194,000	8,6184	100,952	
Totals.	576	794	233	233	100,501	31,511	418,311	211,840	133,333	33,382	35,367	75,173	25,106	90,131	28,001	106,133	22,545	21,823	194,000	8,6184	100,952	
Aggregate gain and loss.	248	248	240	240	145,650	250,562	283,131	211,840	133,333	33,382	35,367	75,173	25,106	90,131	28,001	106,133	22,545	21,823	194,000	8,6184	100,952	

CASUALTIES DURING THE YEAR.

During the first half of the year the mining industry remained in a state of inactivity, and as is usual in such cases the mines are neglected, currents of water are permitted to loosen the roof or to accumulate in the lower portions of the mine, often softening the coal floor, causing falls or a heaving of the bottom. The false work is neglected, loose roof and other dangers are permitted to accumulate, which imperil the lives and the health of the craft. During the second half of the year a sudden demand for coal arose and up to the close of the year there was great activity throughout the mining fields.

The sudden demand for coal was accompanied by an inquiry for more miners who were in many instances crowded into the mines before any provisions had been made for an increase in the volume of air, or before the dangers that had been allowed to accumulate had been removed. The suddenness and severity of the rush was so great that the inspectors could not compass their respective districts in time to point out the many dangers and have them removed. Hence it is that during a period of prosperity of sudden appearance, like a time of severe depression, the miners are subjected to increased peril, and to these conditions many of the year's casualties are attributable.

The returns show that 341 accidents of all classes occurred during the year. Of this number 52 resulted fatally, 155 were of a serious nature and 134 were of a minor character. The fatalities of this year are 12 in excess of the previous one, and in number have been equaled but once during the history of the industry. During 1895, like 1898, which followed a period of depression, the returns indicated a greatly increased output, when the fatalities also increased to equal those of the year that has just closed. Of the year's list the greatest number of fatalities occurred in the counties of Athens, Guernsey, Jackson and Perry, which furnish 50 per cent. of the number returned.

The serious accidents are 13 in excess of those reported during 1897. They occurred in 21 counties, the same as during the preceding year. Sixty-six and one-half per cent. of the list are reported in the counties of Athens, Guernsey, Jackson, Jefferson, Perry, Stark and Tuscarawas.

Of minor casualties 134 are reported. This is an increase of 39 as compared with the previous year and 31 in excess of the year of 1896. These occurred in 21 counties, 60 per cent. of them are re-

turned from Athens, Belmont, Guernsey, Jackson, Jefferson and Perry counties. In but three counties no minor accidents occurred, as compared with 13 during 1897. In four counties there were no accidents of any description. The increase in casualties of the past over that of former years is no doubt due to the sudden demand for coal which created an eagerness among the miners to secure all the benefits possible while it continued.

In the second table the greatest gain in the year's casualties occurred in Jefferson, followed by Tuscarawas and Perry counties. In the loss column, Guernsey county, which led in gains during 1897, is especially conspicuous, as it furnishes 75 per cent. of the past year's decrease.

TABLE SHOWING THE NUMBER OF FATAL, SERIOUS AND MINOR ACCIDENTS AND THE NUMBER OF EACH CLASSIFICATION THAT OCCURRED IN EACH COUNTY.

Counties.	Fatal.	Serious.	Minor.	Total.
Athens.....	8	20	12	40
Belmont.....	3	9	12	24
Carroll.....	1	2	3	6
Columbiana.....	1	5	8	14
Coshocton.....	1	3	0	4
Gallia.....	1			1
Guernsey.....	6	12	11	29
Harrison.....				
Holmes.....				
Hocking.....	1	9	8	18
Jackson.....	6	12	11	29
Jefferson.....	1	13	17	31
Lawrence.....		2	2	4
Mahoning.....	1			1
Medina.....		7	2	9
Meigs.....	1	4		5
Morgan.....		2	1	3
Monroe.....				
Muskingum.....	2		1	3
Noble.....	1	2	2	5
Perry.....	6	15	20	41
Portage.....		4	6	10
Scioto.....	1			1
Stark.....	4	19	9	32
Summit.....	1		1	2
Trumbull.....	2	1		3
Tuscarawas.....	4	12	6	22
Vinton.....		1	1	2
Washington.....				
Wayne.....		1	1	2
Totals.....	52	155	184	341

TABLE SHOWING A COMPARISON OF THE CASUALTIES OF 1
WITH THOSE OF 1897.

Counties.	1897.				1898.				Total	
	Fatal.	Serious.	Minor.	Total.	Fatal.	Serious.	Minor.	Total.	Gain.	
Athens	4	19	14	37	8	20	12	40	3	
Belmont	2	13	7	22	3	9	12	24	2	
Carroll		3	2	5	1	2	3	6	1	
Columbiana	2	8	5	15	1	5	8	14		
Coshocton	1	4		5	1	3		4		
Gallia					1			1	1	
Guernsey	7	20	14	41	6	12	11	29		
Harrison										
Holmes										
Hocking		6	4	10	1	9	8	18	8	
Jackson	4	12	10	26	6	12	11	29	3	
Jefferson	2	6	7	15	1	13	17	31	16	
Lawrence		1	1	2		2	2	4	2	
Mahoning			1	1	1			1	3	
Medina	1	1	4	6		7	2	9		
Meigs	1	1	1	3	1	4		5	2	
Morgan						2	1	3	3	
Monroe										
Muskingum	1			1	2		1	3	2	
Noble		1		1	1	2	2	5	4	
Perry	6	14	11	31	6	15	20	41	10	
Portage		3	5	8		4	6	10	2	
Scioto					1			1	1	
Stark	6	17	7	30	4	19	9	32	2	
Summit		2	1	3	1		1	2		
Trumbull	2			2	2	1		3	1	
Tuscarawas	1	8	1	10	4	12	6	22	12	
Vinton		1		1		1	1	2	1	
Washington		1		1						
Wayne		1		1		1	1	2	1	
Totals	40	142	95	277	52	155	134	341	80	

TABLE SHOWING THE COMPARISON OF THE ACCIDENTS OCCURRING IN 1897 AND 1898.

Counties.	Fatal.		Serious.		Minor.	
	Gain.	Loss.	Gain.	Loss.	Gain.	Loss.
Athens	4		1			2
Belmont	1			4	5	
Carroll	1			1	1	
Columbiana		1		3	3	
Coshocton				1		
Gallia	1					
Guernsey		1		8		8
Harrison						
Holmes						
Hocking	1		3		4	
Jackson	2				1	
Jefferson		1	7		10	
Lawrence			1		1	
Mahoning	1					1
Medina		1	6			2
Meigs			3			1
Morgan			2		1	
Monroe						
Muskingum	1				1	
Noble	1		1		2	
Perry			1		9	
Portage			1		1	
Scioto	1					
Stark		2	2		2	
Summit	1			2		
Trumbull			1			
Tuscarawas	3		4		5	
Vinton					1	
Washington				1		
Wayne					1	
Totals	18	6	33	20	48	9

SOURCES OF ACCIDENTS DURING THE YEAR OF 1898.

The accompanying tables are designed to more clearly exhibit the sources from which casualties occur, also the number that have arisen from the several sources of peril which surround the craft.

Statistics show that in all countries where mining operations are conducted, falls are a source to which the greatest number of casualties are attributable. During the past year it is found that a number of accidents occasioned by falls of roof exceeded that of a year in the State's history. The records show that under this subdivision there occurred 31 deaths, which equals 59.6-10 per cent. of a year's fatalities. Seventy-three or 47 per cent. were of a serious nature and 52 or 38.8-10 per cent. were of a minor character. When falls of roof and coal combined it is found they are responsible for more casualties than those originating from all the remaining classifications. The table exhibits the fact that 59 per cent. of the entire list are due to this source as compared with 52.7-10 per cent. in 1897, 55 per cent. in 1896 and 56.8-10 per cent. in 1895. They furnish 62 per cent. of the fatalities, 62 per cent. of the serious accidents and 66½ per cent. of the minor casualties. When it is considered that falls are almost wholly due to failure to take down loose slate to securely prop the roof, the continued uniformity in the number of accidents occurring annually from this source must be largely attributable to negligence upon the part of the miners to protect themselves. This is mainly due to their constant exposure to danger which renders them indifferent to peril.

The mine cars come next in order of the hazards encountered in conducting mining operations. During the year just closed they were the source of two fatal, 38 serious and 29 minor accidents, and collectively they form 20.2-10 per cent. of the list as compared with 25.3-10 per cent. during 1897, 24 per cent. in 1896 and 24.7-10 per cent. in 1895.

The imprudent handling of power and explosives has in the past placed it fourth on the list as a source of casualties. The returns for this year show that one fatal, five serious and two minor accidents were due to this source, making a total of eight or two and three-tenths per cent. of the list. This is a decrease of 50 per cent. as compared with the preceding year, and is 33 per cent. less than the number returned during any year of which a record has been kept.

The presence of fire damp is responsible for 13 casualties on the list. Of these, the one to James Conley in the Central mine at Lisbon, was fatal. Death was due to the presence of after damp, which was generated from the burning of light carbureted hydrogen gas emanating from a drill hole into some abandoned works, and was not the result of an explosion. The large number of minor injuries in a number of instances were due to persons brushing out small quantities of gas from their working places, rather than to take the trouble to carry the air up and have it swept away.

Shots blowing through the rib are responsible for four accidents, three of which resulted fatally, a number never equaled before in the State's history. Accidents occurring from this source are attributable to the unmethodical and careless method of conducting mining operations.

The use of mining machines is reported as responsible for one fatal, four serious and six minor casualties, as compared with four serious and three minor accidents during the year of 1897, two serious and one minor in 1896, and one each that was fatal, serious and minor during 1895, the year when this subdivision as to the sources of accidents was first inserted in the list.

The remaining casualties as they appear in the table form but a small portion of the year's list and will not be separately treated.

In and about the mines of Ohio 29,365 persons are employed. Of this number 52 were killed during the year, which equals one fatality for every 562.8-10 persons employed. The returns also show that 289 persons were injured, or one where $101\frac{1}{6}$ were employed. By a reference to the last annual report of the Hon. K. S. Kaylor, Railroad Commissioner of Ohio, it is found that there were 53,293 railroad employes in the State. Of this number 140 were killed during the year or one to every 380 persons engaged. The report further shows that 4,446 persons received injuries or one for each 12 employes. Thus it will be seen that the relationship of fatalities is as one to one and one-half in favor of the miner, and as to danger from injury he has more than eight to one advantage over his less fortunate railroad brother.

TABLE SHOWING THE NUMBER AND CHARACTER OF THE ACCIDENTS OCCURRING DURING THE YEAR AND TO WHAT SOURCES THEY WERE ATTRIBUTABLE.

Causes.	Fatal.	Serious.	Minor.	Totals.
Falls of roof.....	31	73	52	156
Falls of coal.....	7	23	17	47
Injured by mine cars.....	2	38	29	69
Premature explosion.....	1	5	2	8
Explosion of gas (CH ₄).....	1	2	10	13
Caught under cage.....	1	2		3
Injured by mules and horses.....			3	3
Falls of timber.....		1	2	3
Falls down shaft.....	1			1
Injured by railroad cars.....		1	2	3
Falls from tippie.....			2	2
Shot blowing through rib.....	3		1	4
Injured by miner's pick.....			1	1
Heart failure.....	2			2
Injured by mining machines.....	1	4	6	11
Boiler explosions.....				
Contact with electric wire.....			1	1
Miscellaneous.....	2	6	6	14
Totals.....	52	155	134	341

TABLE SHOWING THE NUMBER AND CHARACTER OF ACCIDENTS WHICH RESULTED FROM THE PRINCIPAL SOURCES AS REPORTED FROM EACH COUNTY.

Counties.	Falls of roof.			Falls of coal.			Injured by mine cars.			Premature explosion.			Explosion of fire damp.			Miscellaneous.			Total.
	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	
Athens...	4	8	2	2	2	2	7	3		1	1					2	2	4	40
Belmont...	3	5	7		1	2	2	1									1	2	24
Carroll...	1	1			1			2			1								6
Columbiana...		1	2			5	3					1					1	1	14
Coshocton...	1	1			1		1												4
Gallia...	1																		1
Guernsey...	3	5	3	2	1	1	5	2							3	1	1	2	29
Harrison...																			
Holmes...																			
Hocking...	1	1	1		3	2	1	4									4	1	18
Jackson...	3	5	5	1	1		1	3	4	2						1	1	2	29
Jefferson...	1	10	11					3	3									3	31
Lawrence...		1	1				1	1											4
Mahoning...																1			1
Medina...		5	1		2	1													9
Meigs...	1	2			1					1									5
Morgan...		2	1																3
Monroe...																			
Muskingum...	2		1																3
Noble...	1	2	1															1	5
Perry...	3	6	9	1	3	2	1	4	3				1	1	1	1	1	5	41
Portage...		1	2		1			1	2					2			1		10
Scioto...	1																		1
Stark...	2	9	2	1	4	1		4	2				1	4	1	1	1		32
Summit...									1						1				2
Trumbull...										1	1					1			3
Tuscarawas...	3	8	2		1	1		2	1						1	1	1	2	22
Vinton...							1											1	2
Washington...																			
Wayne...			1		1														2
Totals...	31	73	52	7	23	17	2	38	29	1	5	2	1	2	10	10	14	24	341

TABLE SHOWING THE NUMBER OF ACCIDENTS AND THEIR CAUSES AS REPORTED TO THE DEPARTMENT FROM NOVEMBER 15, 1887, TO NOVEMBER 15, 1898.

Years.	Falls of roof.	Falls of coal.	Injured by mine cars.	Premature explosion.	Explosion of gas.	Falls down shaft.	(Pushed under cage.	Falls from derrick.	Kicked by mule or horse.	Injured by rail-road cars.	Falls of timber.	No cause given.	Shot blowing through rib.	Injured by miner's pick.	Heart failure.	Electric wires.	Injured by mining machine.	Miscellaneous.	Total.
1888	100	47	46	13	4		8	3	2			5	1					9	238
1889	92	50	48	12	4	1	2		4	2		3		1				11	290
1890	109	44	59	13	4	2	1		2			3		1				7	245
1891	112	26	47	24	6		3		5		4				1			14	242
1892	126	41	73	21	3	2	1	2	4	3	2		1	1				11	291
1893	118	55	88	17	2	5	1	4	6	5	5		3	3	1			14	327
1894	98	39	60	17	5	5	4	1	1	2	3		2	1	4			15	257
1895	108	46	67	23	1	1	3		4	2			3	2			3	8	271
1896	133	34	74	20	7	1	2	1	9	2			3	1	2	1	3	10	303
1897	98	48	70	16	5	2	1	1	6	2	1		4	2	1	1	7	12	277
1898	156	47	69	8	13	1	3	2	3	3	3		4	1	2	1	11	14	341
Totals..	1,250	477	701	184	54	20	29	14	46	21	18	11	21	13	11	3	24	125	3,022

TABLE SHOWING THE NUMBER OF TONS OF COAL MINED TO THE LIFE LOST, TO THE SERIOUS INJURY AND TO THE TOTAL NUMBER OF FATAL AND SERIOUS ACCIDENTS FOR EACH YEAR SINCE THE CREATION OF THE DEPARTMENT.

Years.	No. of fatal accidents.	No. of serious accidents.	No. tons mined to the person killed or seriously injured and No. tons to the total.			Name of chief mine inspector.
			Fatal.	Serious.	Total.	
1874.....	20	80	108,919	4,844	31,419	Andrew Roy.
1875.....	23	40	202,667	121,606	77,210	"
1876.....	13	70	269,999	50,000	42,168	"
1877.....	30	39	175,000	134,615	76,087	"
*1878.....	20					James D. Poston.
†1879.....						David Owen.
1880.....	22	61	292,624	114,754	84,217	Andrew Roy.
1881.....	29		283,621			"
1882.....	25		378,000			"
1883.....	26		316,516			"
1884.....	26	40	226,636	143,433	86,932	Thomas B. Bancroft.
1885.....	51	32	244,258	153,258	94,170	"
1886.....	43	65	194,308	194,772	78,104	"
1887.....	36	75	286,158	137,356	92,808	"
1888.....	29	79	376,239	138,113	100,934	Robert M. Haseltine.
1889.....	33	52	330,527	209,757	128,322	"
1890.....	42	52	280,687	226,708	125,413	"
1891.....	44	66	296,595	197,730	118,636	"
1892.....	42	93	347,929	157,129	108,170	"
1893.....	32	123	463,378	120,553	95,665	"
1894.....	45	116	364,672	102,674	73,976	"
1895.....	52	152	263,151	90,025	67,078	"
1896.....	41	159	314,942	81,211	64,563	"
1897.....	40	142	311,221	87,668	68,400	"
1898.....	52	155	270,463	90,736	104,956	"

*Number and amount not given.

†No report made during the year.

From 1874 to 1886, owing to there being no law compelling operators to report accidents, the returns as given are not reliable. In 1886 the law was amended requiring that all accidents be reported. The production of the State from 1874 to 1883 is estimated.

TABLE DESIGNED TO SHOW THE AMOUNT OF COAL MINED IN OTHER STATES AND COUNTRIES AS COMPARED WITH OHIO.

	1886.		Number of miners for each life lost.	1887.		Number of miners for each life lost.	1888.		Number of miners for each life lost.
	Fatal.	Non-fatal.		Number of tons mined for each accident.	Number of tons mined for each accident.		Fatal.	Non-fatal.	
Colorado.	105,287	68,138	545	149,811	34,456	551	75,381	27,319	602
Great Britain.	214,949	833,553	497	162,034	69,017	664	191,560	80,046	535
Illinois.	428,571	850,306		303,102			290,512	137,049	458
Indiana.	188,494			227,323	56,880	799	146,311	49,882	
Iowa.				224,297	52,336		177,401		
Kansas.	235,714	61,111		258,172	163,019	929	154,326	45,474	681
Kentucky.									
Maryland.									
Missouri.	50,654	21,709	208				150,388	105,674	210
Montana.									
Nova Scotia.				238,091	107,068		888,094	59,204	2,325
Ohio.	104,800	129,772	474	298,158	187,356	618	370,298	138,118	765
Pennsylvania.	175,311	53,672	440	169,237	151,900	512	166,152	56,849	361
Tennessee.									
West Virginia.							191,964	68,152	346

November 17. George M. Taylor, Eagle mine, Muskingum county, died from injuries received by a fall of roof on August 5.

November 18. Joseph Romine, Hazleton No. 2 mine, Perry county, killed by a fall of slate, coal and clay.

November 24. Elmer Johnson, Fallor mine, Stark county, injured by a fall of drawsate. Died December 7.

November 26. Wm. Mazey, Mazey mine, Trumbull county, injured by an explosion of dynamite. Died November 27.

November 27. George Taylor, Echo mine, Belmont county, killed by a fall of slate.

November 28. David Jessie, Twin City mine, Tuscarawas county, killed by a fall of slate.

December 8. Wm. Powell, Halbert mine, Athens county, killed by a shot blowing through the rib.

December 18. Edward Crook, Bessie mine, Athens county, killed by a fall of coal.

1898.

January 3. J. H. Smith, Wellston No. 3 mine, Jackson county, killed by a fall of slate.

January 5. Wm. Martin, Huff's Run mine, Tuscarawas county, killed by a shot blowing through the rib.

January 14. Emile Genet, Scott's No. 1 mine, Carroll county, killed by a fall of rock.

January 17. Frank Beatty, Nicholson mine, Guernsey county, killed by a chieve wheel breaking loose and the hauling rope throwing him against the entry rib.

January 20. Fred Grobin, Maple Hill mine, Belmont county, killed by a fall of slate.

January 21. Chas. Mathews, Twin City mine, Tuscarawas county, killed by a fall of rock.

January 24. Elmer Wilson, Granger mine, Muskingum county, killed by a fall of slate.

February 4. Wm. Lester, Minglewood No. 3 mine, Stark county, injured by a fall of slate. Died February 10.

February 8. Wm. Price, Tanley's mine, Gallia county, killed by a fall of stone.

February 18. Joseph Greutter, Warwick mine, Stark county, died of heart failure.

February 28. John Bartelatto, No. 10 mine, Athens county, killed by a fall of slate.

February 28. John Lenox, Coalgate mine, Hocking county, killed by a fall of slate.

March 3. George Hanzy, Cisco mine, Guernsey county, killed by a fall of coal.

March 12. James Abram, Rock Run No. 8 mine, Perry county, died of heart failure.

March 24. Arthur Edwards, Klondike mine, Guernsey county, back injured by a fall of slate. Died August 21.

March 30. John W. Hanna, Markle mine, Jefferson county, killed by a fall of rock.

April 4. George McCall, CCC mine, Guernsey county, killed by a fall of rock.

April 18. Wm. B. Hughes, Ohio No. 4 Clay mine, Perry county, killed by a fall of clay.

April 28. Stephen Kerns, Hudson mine, Coshocton county, killed by a fall of stone.

May 14. Frederick Meyers, Midvale No. 2 mine, Tuscarawas county, killed by a fall of stone.

May 25. John Hammond, Briar Ridge mine, Athens county, died of heart failure, the result of shock from injuries received by a mining machine.

June 21. Warren Townsend, Wellston No. 2 mine, Jackson county, killed by a fall of roof.

July 5. Andrew Noble, King's mine, Guernsey county, killed by a fall of slate.

July 11. David Brown, Rock Run No. 3 mine, Perry county, killed by loaded mine cars running over him.

July 12. August Binderbasen, Williams mine, Athens county, killed by a fall of slate.

July 13. Peter Nagle, Superior No. 2 mine, Jackson county, killed by a fall of slate.

July 21. John Grimes, No. 12 mine, Perry county, killed by a fall of slate.

August 4. Alex Powell, Bessie mine, Athens county, injured by a fall of coal. Died August 11.

August 22. James Ditty, Block Ore mine, Scioto county, killed by a fall of clay.

August 25. Wm. Chandler, Fluhart No. 2 mine, Jackson county, injured by a shot blowing through the rib. Died September 1.

August 26. Wm. H. Savage, Cisco mine, Guernsey county, killed by a fall of roof coal.

September 1. Wm. McCay, Beloit mine, Mahoning county, killed by being struck by a cage at bottom of shaft.

September 1. Phillip Brittaere, Fox Lake mine, Summit county, killed by a stone falling from a bucket when it was being hoisted to the surface.

September 5. Thomas Morgan, Iron Point No. 1 mine, Perry county, killed by a fall of coal.

September 6. Wm. W. Taylor, Superior No. 1 mine, Jackson county, injured by a fall of coal. Died September 9.

September 19. James Conley, Central Shaft mine, Columbiana county, suffocated by after damp.

October 5. Wm. Brand, Mt. Ephraim mine, Noble county, injured by a fall of slate. Died October 30.

October 22. James Ward Clark, Applegate mine, Trumbull county, killed by falling down the shaft.

October 27. Wm. Price, Coal Ridge mine, Meigs county, killed by a fall of slate.

October 27. Richard Perry, Minker Run mine, Athens county, injured by a fall of drawslate. Died November 2.

October 31. Charles Rice, Acorn Slope mine, Jackson county, fatally injured by being caught between mine car and side of slope. Died November 1.

November 7. James Kinney, Black Diamond mine, Athens county, killed by a fall of soapstone.

November 14. Aaron Kline, Krause No. 5 mine, Stark county, injured by a fall of coal. Died November 15.

November 15. John Servas, Rock Hill mine, Belmont county, killed by a fall of drawslate.

SERIOUS ACCIDENTS.

1897.

November 26. Wm. Williams, Mazey mine, Trumbull county, spine injured by an explosion of dynamite.

November 27. Steve Anark, Crescent mine, Belmont county, leg broken by being caught between car and post.

December 1. Jerry Oldroyd, Cisco mine, Guernsey county, leg broken by being caught between empty mine cars.

December 2. Selvia E. Lucas, Rose Valley mine, Morgan county, back sprained by a fall of drawslate.

December 2. Lewis Tofolett, King's mine, Guernsey county, collar-bone broken by a fall of slate.

December 3. George Sherwood, Elko mine, Vinton county, fingers injured by mine car. Two fingers amputated.

December 4. Edward Mahaffey, No. 19 mine, Hocking county, leg fractured by a fall of slate.

December 6. H. H. Welson, Mathews' No. 1 mine, Guernsey county, two fingers broken by a fall of slate.

December 7. Wm. Carter, Minglewood Slope mine, Stark county, back and leg injured by a fall of slate.

December 8. Wilson Madison, New Shaft mine, Columbiana county, back and leg injured by mine cars.

December 9. Harry Shuttleworth, Sand Run mine, Hocking county, forefinger taken off while coupling mine cars.

December 9. Wm. P. Taylor, Black Diamond mine, Perry county, foot broken by a fall of drawslate.

December 11. Lewis Gottfried, Peacock mine, Meigs county, head and shoulder bruised, and leg broken while in the act of drilling out a shot at his working place.

December 14. Hez Shrivvers, Shawnee Valley mine, Perry county, arm and shoulder injured by a fall of slate.

- December 14. Mathew Legg, Minglewood Slope mine, Stark county, head and shoulder injured by a fall of stone.
- December 16. Ed Ross, Morgan Run No. 3 mine, Coshocton county, leg broken by a fall of roof.
- December 18. Jesse Sprankle, New Crescent mine, Perry county, nose split open and ankle sprained by a fall of drawslate.
- December 21. Jake Saulbaugh, Wayne mine, Wayne county, chest and arm injured by a fall of coal.
- December 24. Wm. Head, Akron No. 3 mine, Medina county, toes mashed by a fall of stone.
- December 30. Adam Buckner, Wainwright No. 4 mine, Tuscarawas county, arm broken by coupling mine cars.
- December 30. Elmer Whorten, Nathews' No. 2 mine, Guernsey county, badly bruised by a fall of coal.
- December 31. Alviney Meluso, No. 10 mine, Athens county, leg broken by his going back to examine the shot after the squib had been lighted.

1898.

- January 4. James Woods, Hutson No. 4 mine, Portage county, ribs fractured by a fall of drawslate.
- January 8. C. Bornish, Dillon No. 2 mine, Jefferson county, leg broken by a fall of slate.
- January 8. Wm. Hamper, Comet mine, Jackson county, head and face injured by a flying shot of coal.
- January 8. Joe Coy, No. 10 mine, Athens county, leg injured while riding on a drill truck and it running into a car of timber.
- January 10. Jas. Ogle, Briar Ridge mine, Athens county, leg broken by being caught between mine cars.
- January 10. Patrick Burke, Young's Shaft mine, Stark county, two toes broken by a fall of slate.
- January 12. Henry Torist, Clover Hill mine, Stark county, leg broken by being caught between mine cars.
- January 14. Mike Molner, Long Run No. 1 mine, Jefferson county, arm and back injured by a fall of soapstone.
- January 15. Peter Voyder, Long Run No. 2 mine, Jefferson county, foot injured by a fall of soapstone.
- January 24. Thos. Hemsley, Phoenix No. 2 mine, Athens county, leg injured by slipping and falling on a mining machine.
- January 27. John O'Marrow, Walhounding mine, Guernsey county, injured by a fall of slate.
- January 27. Chas. Armbruster, Milton No. 2 mine, Jackson county, leg broken by being caught between mine car and rib.
- January 28. Lewis Barnes, Alma mine, Jackson county, both legs broken by being caught between mine cars.
- January 28. Edward Wakefield, No. 10 mine, Athens county, leg and ribs broken by a fall of coal.
- February 1. Tommie Dodd, Linden No. 5 mine, Carroll county, foot injured by a fall of coal.

February 1. Joseph Simmons, No. 10 mine, Athens county, injured by a fall of slate.

February 2. Charles Morgan, Sedalia mine, Athens county, head seriously injured by a fall of loose roof.

February 2. Cosman Renny, McFadyen mine, Jefferson county, shoulder dislocated by jumping a trip of mine cars.

February 3. Wm. Williams, Superior mine, Perry county, spine injured by falling in front of a mine car.

February 4. John Dommonick, Youngs Shaft mine, Stark county, leg broken by a fall of rock.

February 5. Charlie Tubels, Kings mine, Guernsey county, bone in foot broken by a tie falling on it.

February 7. Michael Finn, New Excelsior No. 2 mine, Medina county, leg broken by mining off a standing shot.

February 9. Gust Wheeling, Canton & Osnaburgh Brick & Tile Company mine, Stark county, leg broken by a fall of slate.

February 11. Thomas Peters, Pine Grove Ore mine, Lawrence county, several ribs broken and shoulder dislocated by loaded ore cars running against him.

February 14. Hopkin Williams, Minglewood Slope mine, Stark county, hip injured by a fall of slate.

February 15. M. Mishanik, Wainwright No. 4 mine, Tuscarawas county, foot badly mashed by a fall of coal.

February 28. Will Stewart, Wade mine, Coshocton county, foot sprained by a mine car.

March 1. George Keller, Milton No. 1 mine, Jackson county, leg broken and other leg, face and head injured by going back to examine a shot.

March 5. Irvin Souders, Summit Hill mine, Stark county, leg broken by a fall of coal.

March 7. Frank Savage, Elm Run No. 3 mine, Stark county, head injured by a fall of coal.

March 8. John Hamm, Excelsior mine, Meigs county, leg injured by a fall of slate.

March 9. Theod Worts, Wade mine, Coshocton county, ankle fractured by a fall of coal.

March 11. James Burke, Coalgate mine, Hocking county, ankle broken by wheels of the mining machine running over it.

March 11. Geo. W. Baumgardner, Hawks Hill mine, Athens county, jaw broken by a fall of slate.

March 15. James Crighton, Youngs Shaft mine, Stark county, toe cut by a fall of coal.

March 15. John Ryan, Minglewood Slope mine, Stark county, seriously burned by gas.

March 17. Albert Smith, Minker Run mine, Athens county, head seriously injured by being struck by the breaking of the link which connects the wire rope to cars.

March 18. James Mulhern, Fluhart No. 2 mine, Jackson county, back and ankle injured by a fall of slate.

March 19. Charles Norris, New Castle mine, Lawrence county, leg broken by a fall of slate.

March 22. W. Sutton, Long Run No. 2 mine, Jefferson county, foot injured by being caught in a frog and a loaded mine car running over it.

March 29. J. D. Thomas, No. 16 mine, Athens county, finger mashed by being caught on car brake.

April 6. John Dwarsic, Crescent mine, Belmont county, eye injured by a piece of steel from a rail, while cutting it with a chisel.

April 12. Robert Lacey, Superior mine, Perry county, ear cut off by a fall of coal from a standing shot.

April 14. David James, Akron No. 2 mine, Medina county, arm seriously injured by a fall of slate.

April 15. Joe Ribacourt, Wheeling Creek No. 1 mine, Belmont county, ankle injured by the falling of a piece of stone.

April 26. John Gallagher, Nice mine, Athens county, leg broken by a fall of fire clay.

April 27. Daniel Cochran, No. 21 mine, Perry county, head and back injured by a fall of slate.

April 29. John Thomas, No. 8 mine, Perry county, fingers mashed by taking car off the cage.

May 3. Earl Spice, Massillon-Peacock mine, Tuscarawas county, head and shoulder injured by a fall of stone. Collar bone broken.

May 3. Elias Stanford, Minglewood mine, Stark county, leg broken by mine cars.

May 6. Martin Slauntz, Belmont No. 2 mine, Belmont county, ankle broken by a fall of stone.

May 6. Samuel Carlisle, Goshen mine, Tuscarawas county, leg broken by stepping into the bull wheel.

May 9. Robert Bankier, T. V. No. 1 mine, Tuscarawas county, head and arm cut by a fall of stone.

May 9. Henry Williams, No. 10 mine, Athens county, ankle broken by a fall of slate.

May 16. Wm. Burnell, Scotts No. 1 mine, Carroll county, ankle sprained by a fall of drawslate.

May 19. George Raine, Minker Run mine, Athens county, arm fractured by a fall of slate.

May 20. Harry Cunningham, Phoenix No. 2 mine, Athens county, leg bruised and ankle sprained by being caught between motor and mine cars.

May 20. Joe Saboliski, Dillon No. 2 mine, Jefferson county, three fingers mashed by a fall of slate.

May 27. Marion Frazee, No. 29 mine, Hocking county, finger broken by a fall of coal.

May 29. George McClane, McFayden mine, Jefferson county, foot seriously injured by a fall of slate.

May 31. Jesse Thomas, Brock Hill mine, Tuscarawas county, leg broken by a fall of slate.

May 31. Lewis Flickinger, Trenton mine, Tuscarawas county, leg broken by a fall of slate.

June 2. Wm. Gruther, Charter Oak mine, Meigs county, ribs broken by a fall of slate.

June 8. John Stratton, Akron No. 2 mine, Medina county, thigh broken by a fall of top coal.

June 15. Joseph DeLong, Walhounding mine, Guernsey county, leg broken by coming in contact with a water box.

June 22. James Lilley, Peacock mine, Perry county, body injured by fall of coal.

June 23. David Lewis, Hutson No. 1 mine, Portage county, rib broken by accidentally stepping on the cage seat.

June 28. Mike Straus, Dillon No. 2 mine, Jefferson county, arm broken by a fall of slate.

July 7. Samuel Newman, Sand Run mine, Hocking county, leg broken by a fall of coal.

July 11. John Murray, Rends No. 3 mine, Perry county, head and back injured by a trip of cars jumping the track.

July 16. Alex Davis, Akron No. 4 mine, Medina county, thigh and rib broken by a fall of dirt while sinking a new slope.

July 16. H. Reice, No. 12 mine, Perry county, leg broken by a fall of slate.

July 17. D. J. Hannah, Sand Run mine, Hocking county, arm bruise by a mining machine.

July 21. John Stevenson, T. V. No. 1 mine, Tuscarawas county, back seriously injured by a fall of rock.

July 23. Morgan Richards, New Greenville mine, Stark county, injured by getting on the cage after it started and being caught between timber and cage.

July 23. Harvey Fothergill, Roger mine, Jefferson county, leg broken by car running off the track.

July 25. Adam Cairnes, Walnut Hill No. 2 mine, Belmont county, hand mashed by coupling cars on the passway.

July 28. Henry Freeman, Kings mine, Guernsey county, leg broken by being run over by a mine car.

August 2. Barney Millincamp, No. 21 mine, Perry county, leg broken by being run over by mine cars.

August 3. Tommie Hickie, Glenwood mine, Noble county, hip dislocated by a fall of slate.

August 11. Charles Kirchberg, Hutson Run mine, Medina county, internally injured by a fall of stone.

August 12. John Donaldson, Houk mine, Tuscarawas county, seriously injured by a fall of stone.

August 12. Henry Stefflant, No. 8 mine, Perry county, injured by a fall of soapstone.

August 12. George Crone, T. V. No. 1 mine, Tuscarawas county, hand mashed by a fall of stone.

August 17. Wm. Winkler, Hartford mine, Guernsey county, back injured by a fall of slate.

August 19. John Green, New Shaft mine, Columbiana county, leg and back injured by being caught between car and rib.

August 22. George Wheller, Glenwood mine, Noble county, back and hips injured by a fall of slate.

August 22. Isaac Dickins, Kings mine, Guernsey county, two ribs broken and shoulder dislocated by riding on loaded mine cars.

September 8. Wm. Baine, Dillon No. 2 mine, Jefferson county, head cut and collar-bone broken by a fall of roof.

September 7. George W. Perry, Minker Run mine, Athens county, foot crushed by a fall of slate.

September 8. George Collins, Daleton mine, Athens county, ankle broken by a fall of slate.

September 8. Dana Williams, Syracuse Shaft mine, Meigs county, foot and ankle hurt by knocking down coal.

September 13. Stacey Beoski, Dillon No. 2 mine, Jefferson county, injured by a fall of stone.

September 13. Tom Zamebone, Dillon No. 2 mine, Jefferson county, injured by a fall of stone.

September 16. August Hummell, Wellston No. 3 mine, Jackson county, back injured by a fall of slate.

September 20. John Hines, Failor mine, Stark county, leg broken by being run over by mine cars.

September 23. George Boseley, Clover Hill mine, Stark county, leg broken by a fall of slate.

September 23. Alexander Sims, Tom Corwin No. 1 mine, Jackson county, leg injured by being caught by a motor on the entry, necessitating amputation.

September 26. Thomas Reed, Phoenix No. 2 mine, Athens county, arm broken by falling backward on the stairway.

September 27. Mike Thomoseo, New Pittsburg No. 9 mine, Hocking county, legs broken by a fall of coal.

September 29. Wm. Harmon, Laughlin mine, Tuscarawas county, leg broken by a fall of slate.

September 30. Thomas Rice, Hemlock mine, Perry county, foot injured by being caught between railroad cars.

October 1. Con McCue, Slope mine, Columbiana county, seriously injured by being squeezed by mine cars.

October 3. Thomas Williams, Trail Run mine, Guernsey county, knee fractured by a fall of slate.

October 4. Andy Powlock, Crescent mine, Belmont county, leg broken by a fall of stone.

October 4. John McInman, Briar Ridge No. 6 mine, Athens county, seriously injured by being caught between mine car and timbers of the shaft.

October 4. James Sayers, Nutwood mine, Stark county, small bone in foot broken by a fall of coal.

October 5. Llewellyn Jenkins, Hutson No. 2 mine, Portage county, rib broken by a fall of coal.

October 6. James Daniels, Walhounding mine, Guernsey county, **finger** injured while coupling trip, necessitating amputation.

October 7. Peter Gallagher, Comet mine, Jackson county, seriously injured by trying to dislodge the cage which fell to the bottom.

October 8. Wm. Farsbaugh, Hern Brook mine, Stark county, **back and** head injured by a fall of slate.

October 8. Fred Domro, Hern Brook mine, Stark county, **back and** head injured by a fall of slate.

October 12. Fred Kellogg, New Shaft mine, Columbiana county, **back** injured by a fall of rock.

October 12. Wesley Wright, New Shaft mine, Columbiana county, **ankle** broken by a board breaking, his foot being caught in the bull wheel.

October 15. Emmoy Grannon, Black Diamond mine, Morgan county, **arm** broken by a fall of slate.

October 15. Andrew Stevenson, Sand Run mine, Hocking county, **leg** injured by being struck with the haulage rope.

October 17. Wiley James, No. 21 mine, Perry county, **leg and two ribs** broken by a fall of coal.

October 18. Aaron Jenkins, Hutson No. 2 mine, Portage county, **finger** broken by being caught by a mine bar.

October 19. Wm. Giford, Globe mine, Jackson county, **leg broken by a** fall of slate.

October 20. Joe Doud, New Pittsburg, No. 7 mine, Hocking county, **thumb** cut off by being caught in the chain of a mining machine.

October 27. Newell Nicholas, Superior No. 6 mine, Jackson county, **foot** injured by a fall of slate.

October 27. Charles Strein, Midvale No. 2 mine, Tuscarawas county, **collar-bone** broken by falling under a mine car.

October 27. Bort Huvick, West Massillon No. 3 mine, Stark county, **knee** injured while driving in the mine.

October 31. Thomas Evans, Standard mine, Jackson county, **leg** broken by a fall of coal.

October 31. John Menoit, Dillon No. 2 mine, Jefferson county, **two ribs** broken by a fall of slate.

November 1. Mike Anderson, Chestnut Hill No. 2 mine, Perry county, **face and hands** burned by an explosion of gas.

November 1. Robert Cunningham, Walnut Hill mine, Belmont county, **injured by a** fall of slate.

November 2. Irwin Nanny, Minker Run mine, Athens county, **nose** broken by a fall of coal.

November 2. Peter Bartels, Briar Ridge mine, Athens county, **foot in-**jured by mine cars.

November 6. E. D. Brady, Wellston No. 3 mine, Jackson county, **back** injured by a fall of slate.

November 8. Press Sheck, Maple Hill mine, Belmont county, **leg broken** by a fall of slate.

November 11. Valentine Flemming, Klondike mine, Medina county, **fingers** cut by a fall of slate.

November 14. Robert Boyston, Black Diamond mine, Belmont county, head and shoulder badly injured by a fall of coal.

MINOR ACCIDENTS.

1897.

November 16. Jos. Bird, Walhounding mine, Guernsey county, injured by mine cars jumping the track.

November 18. Oscar Kennedy, Black Diamond mine, Morgan county, ankle and hips injured by a fall of drawslate.

November 18. Albert Conner, Walhounding mine, Guernsey county, head injured by a fall of slate.

November 19. John Secrets, Cisco mine, Guernsey county, arm bruised while coupling railroad cars.

November 22. Cannit Miller, Young Shaft mine, Stark county, foot injured by mine cars jumping the track.

November 22. John Weatherston, McFadyen mine, Jefferson county, back injured by a fall of soapstone.

November 22. Sherman Shipley, Garfield mine, Jackson county, wrist injured by a fall of drawslate.

November 27. David Morgan, Hutson No. 4 mine, Portage county, foot injured by being caught between mine cars.

December 4. Elmer Earls, New Shaft mine, Columbiana county, back injured by a fall of slate.

December 8. James Shaw, Pioneer mine, Guernsey county, leg bruised by mine cars.

December 8. R. E. Powell, Halbert mine, Athens county, breast injured by a shot blowing through the rib.

December 11. W. O. Melvin, New Crescent mine, Perry county, head injured by being kicked by a mule.

December 12. Peter Black, Pioneer mine, Guernsey county, back injured by a fall of slate.

December 18. Joe Barnick, Wheeling Creek mine, Belmont county, knee and foot injured by a fall of soapstone.

December 14. W. H. Russell, Scotts No. 1 mine, Carroll county, hips and back bruised by being caught between mine cars and roof.

December 15. Thomas Sweeney, New Shaft mine, Columbiana county, arm injured by a mining machine jack.

December 15. John Clark, No. 8 mine, Perry county, side and leg injured by a fall of slate.

December 18. Ick Blosser, Sand Run mine, Hocking county, one toe crushed by being run over by a mining machine truck.

December 22. F. S. Worthington, Keystone mine, Perry county, leg bruised by a fall of slate.

December 22. George Brooks, Hutson No. 4 mine, Portage county, slightly burned while brushing out fire damp.

December 22. Joseph Adams, Hutson No. 4 mine, Portage county, slightly burned while brushing out fire damp.

December 27. John Goddard, New Shaft mine, Columbiana county, leg injured by a fall of coal.

December 28. J. Barr. Mathews No. 2. mine, Guernsey county, end of finger mashed by being caught between two lumps of coal.

1898.

January 3. Andrew Frank, McFadyen mine, Jefferson county, thigh injured by a fall of soapstone.

January 3. Milton Boles, McFadyen mine, Jefferson county, foot injured by a fall of soapstone.

January 4. Gene Hammond, No. 29 mine, Hoeking county, leg injured, by a fall of coal.

January 11. Luke Doyle, Shaft No. 2 mine, Medina county, finger and thumb injured by a fall of coal.

January 13. W. Nichols, Long Run No. 1 mine, Jefferson county, head cut and ankle sprained by a fall of slate.

January 13. Clyde Brasher, Long Run No. 1 mine, Jefferson county, back and head injured by a fall of slate.

January 15. Herman Fitzgerald, Long Run No. 1 mine, Jefferson county, finger cut off by being caught between roof and rail while unloading T rails.

January 17. W. E. Applegarth, Crescent mine, Belmont county, toe injured by a fall of coal.

January 19. George Thexton, No. 8 mine, Perry county, leg sprained by jumping from a mine car.

January 21. Joe Bainbridge, Long Run No. 1 mine, Jefferson county, ankle bruised by moving a mining machine.

January 22. Wm. Williams, Hartford mine, Guernsey county, injured internally by falling from a tippie.

January 25. James Thompson, Lawrence Mill mine, Lawrence county, injured by a fall of slate.

January 27. John Lewis, White Spar mine, Summit county, hand bruised by car jumping the track.

January 29. John Koski, No. 24 mine, Athens county, head and back injured by undermining loose coal.

January 31. John McPete, Glenwood mine, Noble county, head cut by a fall of rock.

February 1. Lewis Reed, New Crescent mine, Perry county, foot injured by being caught between mine cars.

February 1. Fred Bush, New Crescent mine, Perry county, hip injured by a fall of drawslate.

February 1. C. T. Jones, Brock Hill mine, Tuscarawas county, hip bruised by a post falling on him.

February 3. Richard Davies, Hutson No. 4 mine, Portage county, shoulder bruised by a fall of drawslate.

February 7. Wm. Tedrow, Lower mine, Perry county, back injured by lifting a lump of coal into a car.

February 14. George Doughty, Wainwright mine, Jackson county, arm injured by pushing a car under the tippie.

February 14. Edward Smathers, Raccoon mine, Vinton county, jaw injured by being kicked by a mule.

February 18. Charles Swartz, New Greenville mine, Stark county, burned by brushing out gas.

February 24. Pete Smith, No. 21 mine, Perry county, back injured by a fall of slate.

February 25. John Harmon, New Greenville mine, Stark county, burned by an explosion of gas.

March 2. James Hutchison, Rock Cut mine, Tuscarawas county, side injured by a fall of slate.

March 4. John Gatchel, North Star mine, Athens county, back injured by a fall of coal.

March 5. Albert Crouk, Minker Run mine, Athens county, leg bruised by going back to examine a shot.

March 7. Perry Conch, McFadyen mine, Jefferson county, injured by a fall of soapstone.

March 10. Nin Savage, Coalgate mine, Hocking county, foot injured by an empty mine car running over it.

March 15. Andy Arret, McFadyen mine, Jefferson county, hand cut by a T iron rail.

March 15. Roger Kirk, Minglewood Slope mine, Stark county, burned by fire damp.

March 15. Wm. Forest, Minglewood Slope mine, Stark county, burned by fire damp.

March 16. George W. McMahon, Franklin mine, Belmont county, back and shoulder sprained by a fall of stone.

March 22. Charles Brown, Quaker Valley mine, Columbiana county, leg bruised by a fall of coal.

March 24. Charles B. Fry, Tom Corwin No. 1 mine, Jackson county, injured by being caught between mine cars and roof.

March 31. James Paxtons, Diamond No. 2 mine, Muskingum county, head cut and back sprained by a fall of slate.

April 2. Roy Leggett, McFadyen mine, Jefferson county, back injured by a fall of soapstone.

April 3. Steve Herink, Wheeling Creek No. 1 mine, Belmont county, hand injured by being struck by a miner's pick.

April 5. Dink Goins, Black Diamond mine, Athens county, foot injured by a fall of soapstone.

April 14. James Criley, Rock Cut mine, Tuscarawas county, hand injured by being kicked by a mule.

April 26. Lew Galloway, Long Run No. 2 mine, Jefferson county, finger injured by being caught between mine car and post.

April 27. Thomas Longsworth, Clover Hill mine, Stark county, leg bruised by being caught between mine cars.

April 27. Richard Dungan, Price mine, Jackson county, finger injured by mine cars bumping together.

April 28. Mike Fooley, No. 8 mine, Perry county, eye injured by a piece of coal hitting him.

April 29. John P. Williams, Jr., Deerfield No. 4 mine, Portage county, toes mashed by being blocked between cars.

April 29. Wm. Griffith, Crescent mine, Belmont county, head and hand slightly cut by a fall of stone.

April 30. August Hingel, New Greenville mine, Stark county, injured by a fall of rock at face of room.

May 3. Ross Aken, McFadyen mine, Jefferson county, side injured by a fall of soapstone.

May 6. Wm. Winkler, Tom Corwin No. 1 mine, Jackson county, foot crushed by being caught between mine cars.

May 13. Wm. Harper, Acorn Slope mine, Jackson county, finger mashed by moving a slate shot.

May 20. James Burnell, Scotts No. 1 mine, Carroll county, hand injured by being caught between car and side of entry.

May 21. Finley Shasteen, Fairfield No. 2 mine, Columbiana county, hips bruised by a fall of coal.

June 3. Thomas French, Daleton mine, Athens county, injured by a fall of drawslate.

June 9. Joseph Shwamberg, O. & W. Va. mine, Belmont county, injured by a fall of coal and slate.

June 9. Frank Jonas, No. 29 mine, Hocking county, teeth knocked out by a fall of coal.

June 16. Robert Meekel, Congo No. 2 mine, Perry county, thumb caught in chain of mining machine and lacerated.

June 28. Felix Bunk, Wheeling Creek No. 1 mine, Belmont county, ankle injured by a fall of soapstone.

June 29. Wm. Bingham, Cherry Valley No. 3 mine, Columbiana county, leg injured by a fall of coal.

July 14. Marion Tague, Lower mine, Perry county, ankle sprained by a fall of slate.

July 14. Herman Willey, Laughlin mine, Belmont county, back injured by a fall of stone.

July 15. Orville Conaway, Laughlin mine, Belmont county, hand cut by an ax while making a cap for post.

July 18. J. Clouse, No. 12 mine, Perry county, injured by being squeezed by empty cars at slope bottom.

July 22. Willard Madison, New Shaft mine, Columbiana county, head and face injured by a fall of slate.

July 26. Norman Brown, Glenwood mine, Noble county, side injured by falling from the hoppers.

July 27. George Williams, Schicks mine, Belmont county, injured by a fall of stone.

July 28. James Kidd, New No. 29 mine, Hocking county, wrist dislocated while riding on a mine car, by letting his arm extend above his head and caught on roof.

July 28. David Davis, Elm Run No. 8 mine, Stark county, foot bruised by a fall of coal.

August 1. John Canter, Fluhart No. 8 mine, Jackson county, head and back injured by a fall of timbers.

August 3. Edward Daringer, Rock Cut mine, Tuscarawas county, injured by a mine car jumping the track.

August 5. Thomas Walters, No. 16 mine, Athens county, injured by being run over by mine cars.

August 11. Fred Minor, Hutson Run mine, Medina county, side injured by a fall of stone.

August 18. Amos Breden, Kelley mine, Lawrence county, injured by jumping on a trip of coal cars.

August 21. Cal Littlejohn, Milton No. 2 mine, Jackson county, hand burned by coming in contact with electric wires.

August 27. J. S. Davis, Clover Hill mine, Stark county, leg injured by a fall of slate.

August 27. Max Yimmer, Briar Ridge mine, Athens county, fingers injured by being caught in chain of mining machine.

August 28. W. H. Thomas, Crescent mine, Belmont county, foot injured by loaded mine cars.

September 1. George Godfrey, Dillon No. 2 mine, Jefferson county, leg bruised by a fall of slate.

September 1. T. Dal Carbino, Imperial mine, Guernsey county, finger mashed by a fall of slate.

September 3. Wesley Searlott, Rock Cut mine, Tuscarawas county, foot mashed by a fall of coal.

September 3. Robert Crawford, Kings mine, Guernsey county, burned by fire damp.

September 4. Samuel Fair, Keystone mine, Perry county, face cut by a fall of slate.

September 8. D. Jenkins, Hiawatha mine, Athens county, hand injured by a cutting machine.

September 12. W. G. Brown, Keystone mine, Perry county, leg and arm injured by a fall of coal.

September 16. Wm. Slatzer, No. 75 mine, Perry county, leg injured by a tail rope.

September 20. Frank Graham, Hiawatha mine, Athens county, injured by bumpers while coupling mine cars.

September 23. George Helmick, Malvern mine, Carroll county, finger broken and face burned by a premature explosion.

September 26. F. R. McLain, Congo No. 1 mine, Perry county, head cut by a fall of slate.

September 26. John Russell, Congo No. 1 mine, Perry county, head injured by a fall of slate.

September 26. C. E. McNulty, Lower mine, Perry county, breast injured while coupling railroad cars.

September 27. George Cavey, Phoenix No. 2 mine, Athens county, hips and arm bruised trying to release an empty cage from the car.

September 30. Ed Burns, Milton No. 2 mine, Jackson county, back injured by a fall of slate.

October 1. Andrew Brinza, Cisco mine, Guernsey county, burned by an explosion of gas, the result of cutting into an abandoned oil well.

October 1. Thomas Richards, Cisco mine, Guernsey county, burned by an explosion of gas, the result of cutting into an abandoned oil well.

October 3. Sandy Vargo, New Pittsburg No. 8 mine, Hocking county, hip injured by a fall of slate.

October 5. Obe Dickinson, Long Run No. 2 mine, Jefferson county, injured by a fall of soapstone.

October 5. L. V. Deloche, Gaylord mine, Belmont county, foot injured by a fall of stone.

October 9. Andrew Shirdin, New Shaft mine, Columbiana county, foot injured by a fall of coal.

October 10. Wm. Smith, Huffs Run mine, Tuscarawas county, back and two fingers injured by a fall of slate.

October 12. T. A. Jones, Milton No. 2 mine, Jackson county, head bruised by a fall of drawslate.

October 19. Homer Swingle, Sand Run mine, Hocking county, injured by a mine car jumping the track.

October 23. C. Brown, Long Run No. 2 mine, Jefferson county, ankle injured by being caught between empty cars.

October 25. George Baling, No. 29 mine, Hocking county, leg injured by being caught between car bumpers and post in a room.

October 26. Thomas Williams, Oak Hill mine, Jackson county, ankle sprained by a fall of drawslate.

October 31. Perry Conch, McFadyen mine, Jefferson county, foot injured by a fall of soapstone.

November 1. Thomas Davis, Chestnut Hill No. 2 mine, Perry county, foot and hand burned by an explosion of gas.

November 1. John Newman, Dalton mine, Wayne county, injured by a fall of slate.

November 5. Fin Williams, New Crescent mine, Perry county, leg injured by a fall of slate.

November 6. Fred Parker, No. 24 mine, Athens county, injured by slipping from a pile of bank rails while loading lumber on the outside.

November 11. John Griffith, Hutson No. 2 mine, Portage county, finger injured by a fall of slate.

November 14. Thoburn Waite, Dillon No. 2 mine, Jefferson county, arm and leg bruised by being caught between mine cars.

ROBERT M. HASELTINE,
Chief Inspector of Mines, Columbus, Ohio.

DISTRICT INSPECTORS.

FIRST DISTRICT

Composes the counties of Hocking, Vinton, Jackson and Scioto.
SAMUEL LLEWELLYN, Inspector,
Coalton, Jackson county, Ohio.

SECOND DISTRICT

Composes the counties of Athens, Washington, Meigs, Gallia and
Lawrence.

ALEXANDER BEATTIE, Inspector,
Nelsonville, Athens county, Ohio.
Succeeded by L. W. Hull, Glouster, Ohio, on July 15, 1898.

THIRD DISTRICT

Composes the counties of Perry, Muskingum, Morgan and Noble.
ROBERT H. MILLER, Inspector,
Shawnee, Perry county, Ohio.
Succeeded by David B. Wilson, Corning, Ohio, on July 15, 1898.

FOURTH DISTRICT

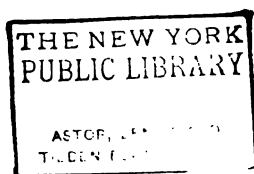
Composes the counties of Holmes, Coshocton, Guernsey, Belmont and
Monroe.

THOMAS MCGOUGH, Inspector,
Bridgeport, Belmont county, Ohio.

FIFTH DISTRICT

Composes the counties of Harrison, Jefferson, Carroll and the southern
half of Columbiana.

THOMAS H. LOVE, Inspector,
Leesville, Carroll county, Ohio.
Succeeded by James P. Davis, Dell Roy, Ohio, on February 15, 1898.



Mines Visited by the Chief Inspector During the Year.

LONG RUN NO. 1

Is a mine owned by the Wheeling, Lake Erie and Pittsburg Coal Company. It is situated in Mt. Pleasant township, Jefferson county, and was visited on November 17, 1897. It is opened into the No. 8 seam of coal, and is one of the largest mines in eastern Ohio. J. J. Roby is superintendent and Wm. Fitzgerald acts as mine boss. At the time of my inspection 117 miners, nine inside and 27 outside day men were employed. This mine is ventilated by means of a fan, which produced 28,000 feet of air per minute. Heavy drawslate which overlies this vein of coal upon being exposed to the air disintegrates rapidly, which greatly obstructs the airways. This, together with poor doors and stoppings, had retarded the flow of air so that it was entirely unsafe at the working faces. At the head of the main entry the current of air was reduced to 3,000 feet per minute, and at the face of the fifth and sixth entries the quantity was the same. At the head of the first and second, third and fourth left entries the volume was reduced to 5,000 feet. The doors and stoppings were ordered repaired and the airways cleared up where obstructed, otherwise the conducting of the mine was above criticism.

LONG RUN NO. 2

Is owned and controlled and is under the same management as is No. 1, to which it lies adjacent, the coal coming to the same check-house, from which it is loaded to the shutes. It was visited on November 18, 1897, when 138 miners and 10 day men were employed. This mine is also ventilated by a fan and, although subject to the same difficulties as is No. 1 mine, the doors and stoppings have been less neglected and the airways are less obstructed. As a result, at the head of the thirteenth and fourteenth right entries 7,000 feet of air was passing, and at the head of entry 15, 21,000 feet of air was measured. Some alterations and improvements were suggested with a view of securing a more uniform distribution of the air, otherwise the mine was found in a fair condition.

NO. 4

Is owned by the Jacksonville Mining Company and is located Jacksonville, in Trimble township, Athens county. It is supervised by David S. Williams. I visited this mine on November 1897, at the request of Mr. Joseph P. Rend, for the purpose of consulting in regard to the securing of a break in rooms 16 and 17 1 to the right of entry No. 3. An investigation developed that fall had broken to the surface near the bank of Sunday Creek, which it was drawing a stream of water equaling in volume the capacity of the mine pumps. They were driven by compressed air and in order to hold the water in check they absorbed the capacity of the air plant, hence the mine was found idle. In the immediate vicinity of the break there is a swale in the mine, which forms a large and natural sump for the confinement of this water immediately over which the surface is level and admirably suited to the establishing of a pumping station. A shaft was recommended at this point and the erection of a pumping station of ample size to dispose of not only the present flow of water, but to be able to handle a largely increased volume of water should it be found necessary. Two large holes were drilled into this basin, through which for a time the water was forced to the surface. This proving unsatisfactory, the suggestion of sinking a shaft was afterwards adopted and for the purpose of economy in operation, a battery of pumps was placed on the inside of the mine. The latter was done in variance with the advice of the Mining Department.

CHARTER OAK

Is located in the valley back of the city of Pomeroy, in Adams county. It is owned by the Charter Oak Coal Company and is operated under the management of B. Malone, Ed Weeks acting as mine boss. This mine is opened into the Pomeroy seam of which is the equivalent of the Pittsburg vein. I examined this mine in company with District Inspector Alex Beattie on December 8, 1897, for the purpose of advising as to the securing of the roof along the main entries, which, at this point, appears to be treacherous, the water causing it to separate and fall in great quantities. As the management was about to install mining machinery it was thought that their introduction would cause increased peril to the miners. However, an examination proved that the roof is much better in the rooms than it did in the entries, and that the

stalling of mining machines would not increase the danger of mining. It was thought best to securely timber the entries rather than to continuously remove the slate.

MILLPORT NO. 1

Is owned by the Millport Coal Company and is located in Jackson township, Stark county. The mine is conducted under the supervision of Mr. Charles Brenkamp. Lewis Brenkamp, his son, acts as bank boss. This is a shaft opening into the No. 1 or Massillon seam of coal. At the time of my visit, January 6, 1898, 100 miners, 28 inside and 14 outside day men were employed. The coal on the south side had become exhausted, and a large fault on the north and west had interrupted the coal seam so that when I inspected the mine they were engaged in drawing pillars. The men were well distributed throughout the mine. The pillars were large and capped with a splendid roof. The work was being well conducted. About 10 men were working in some cannel coal, of which quite a field remained, but being unprofitable, they were thinking of abandoning when the pillars would be exhausted, which would be in about two or three months.

GREENVILLE

Is located in Tuscarawas township, Stark county, and is owned by the Howells Mining Company, of Massillon. This is a new mine, opened by means of a shaft 265 feet in depth, piercing the Massillon seam of coal, which, at this point, has a fine slate roof. The coal is of excellent quality and gives promise of a fine field of the Massillon coal. The hoisting tower and shutes are of steel and are made fire proof. The equipments throughout the mine are of the most improved type, and are designed with especial reference to the speedy and economical handling of the product. This mine was visited on January 7, 1898, when about 40 miners were employed under the direction of Mr. Mathew English. This is believed to be one of the finest equipped mines in northern Ohio.

WOOLAND

Is located near East Greenville, in Tuscarawas township, Stark county, and is owned by the Massillon and Cleveland Coal Company. R. H. Wainwright acts as superintendent and W. W. Souden is mine boss. This is a shaft opening, 250 feet in depth, to the Massillon seam of coal. This mine employed 70 miners, 12 inside and nine

outside day men, and fan ventilation is used. At the time of my visit, January 8, 1898, the roads were muddy, the break-through narrow and more or less obstructed. As a result the air was deficient at the head of the entries and in the rooms. The roof is of slate and the coal is of excellent quality. The basin on one side of the shaft lies very much higher than the main basin, the coal from which is lowered to the shaft by means of an incline. Mining machines of the projectile type using compressed air have been installed and produce about one-half of the output. Aside from the roads and the ventilation the mine was being conducted in a satisfactory manner.

NICHOLSON.

This mine is a drift opening located in Cambridge township, Guernsey county, and is owned by the Ohio Coal Company. Mr. C. W. H. Kreikenbaum is superintendent and mine boss. I visited this mine on January 18, 1898, in company with ex-District Inspector W. H. Turner for the purpose of inspecting the place where Frank Beatty was killed and to learn the cause which led to his death. The investigation showed that the deceased was employed as a trapper at a turn in the main entry over which a tail rope system was being operated. It developed that at a point some distance beyond his station a swivel on the tail rope got under a chieve wheel, thus giving it a sudden jerk, which caused it to tear out one of the curve wheels near where the deceased was standing. Although his position was back of the rope, for some reason he was evidently standing in front of it when the break occurred, thus throwing him with great violence against the opposite rib, causing his instant death.

NEW PITTSBURG No. 9

Is a drift opening into the No. 6 or Hocking seam of coal, and is located in Ward township, Hocking county. It is owned by the New Pittsburg Coal Company, and is under the supervision of Mr. J. R. Birkbeck. Wm. Embleton, of Blatchford, acts as mine boss. I inspected this mine on March 21, 1898, in company with Mr. Edward Johnson, Mr. Birkbeck, Mr. Embleton and the mine committee. This mine is ventilated by a fan, which at a point about 400 feet from the intake was producing 28,000 feet of air. At the split where a portion of the air is diverted to the north side there was 7,500 feet passing. On the south side where the majority of the

men were employed, the false work was found to be in a very much neglected condition. On the main south entry above the fourth east 5,400 feet of air was passing. At the head of the fifth and sixth west entries there was no current that could be measured, which was also true at the head of the seventh and eighth west entries. A board was found off from the brattice of the main south entry, a defective door was leaking a large amount of air on the third and fourth east entries and a brattice was found broken down on the third west entry. These defects together with the fact that the south face entry had broken through into the old Sand Run mine were responsible for the unhealthy condition in which I found this mine. I ordered these defects to be remedied at once.

CAWTHORN (EAST SIDE).

This is a drift opening made into the Hocking Valley seam of coal. It is located in Ward township, Hocking county, and is owned by the Stalter Coal Company. Robert Stalter is superintendent and John Murphy is mine boss. It was visited on April 18, 1898. The roof along the main entry is of fire clay and soapstone, the rock coming down in close proximity to the coal. The posts along the main entry were thought to be set too far apart under the cross-piece. It was suggested that in the future the posts be set closer together, and that the number of cross-pieces along the entry be increased. At a number of points it was thought best to take down portions of the roof. A bad door was found on the main east entry, also one on the main entry from the first and second north and one on the north entry between the first and second west entries. There were no sleepers under any of the doors and the false work was poorly closed. Some of the doors would not shut readily, as is required by law. I ordered that these defects be remedied at once.

CAWTHORN (WEST SIDE).

Is owned by the same parties as is the east side. It is a drift opening made into a narrow ridge, the coal coming to the same hoppers. This mine is ventilated by a furnace, which has entirely too much opening space around it. For some reason a portion of the bridge wall had been removed, thus making it entirely inadequate for the work required. If properly constructed and well fired it is believed the ventilation would be sufficient. The doors in this mine were also out of order, requiring more sills and reLAYing. A large amount of filth in the main air course was ordered to be covered.

NEW SHAFT

Is owned by the Big Vein Coal Company, of Cleveland. situated at Salineville, in Washington township, Columbiana co. It is under the supervision of Samuel Madison and John Gallagher mine boss. I inspected this mine on May 25, 1898, in company with District Inspector James P. Davis. This is the most gaseous in the State, and especial attention must be given to the door stoppings. As a result of this care the mine is well ventilated every particular. Since my last visit a new fan has been erected near the bottom of the manway, giving a greatly increased volume of air. This mine throughout was found to be in a splendid condition.

OLD SLOPE

Is owned by the Ohio and Pennsylvania Coal Company, of Cleveland. It is situated near Salineville, in Washington township, Columbiana county. Mr. James Black acts as superintendent. John Whalen is mine boss. I examined this mine on May 26, 1898, in company with District Inspector James P. Davis. Since my last visit a new fan driven by an electric motor has been erected near the foot of the slope, thus permitting the air to be taken in along the main hauling way and so avoiding obstructions, which were encountered in the airway previously in use. This enabled the mine to greatly increase the volume at the head of the several entries. At the face of the main entry, the most advanced point in the mine there was over 20,000 feet of air in circulation. The mine for the first time during my acquaintance with it was found to be in excellent condition.

NEW NO. 29

Is a slope opening into the Hocking Valley vein of coal. located near Murray City, in Sutton township, Athens county. owned by the Greendale Furnace Company, with J. W. Miske superintendent. This mine employed eight miners and two hands. At the time of my visit, August 15, 1898, entries alone were being driven. While sinking the slope a small blower and a basket had been used as a means of ventilation. The blower was poorly constructed and the surroundings so adverse to its use that the smoke was pouring through the mine, rendering it impossible for the men to work. The doors and stoppings were also of poor design. I ordered that the fire basket be enlarged and the obstructions removed, also that the false work be repaired at once.

HIAWATHA.

This is a drift opening at Orbiston, in Trimble township, Athens county. At the time of my inspection, September 13, 1898, this mine was in the hands of J. W. Winder, Receiver. James Smith was acting as mine boss. One hundred and thirty-two miners, 12 inside and 26 outside day men were employed. This is a fine body of coal, and the mine is fairly well equipped for operation. The making of the break-throughs has been greatly neglected, and the fan was weak, producing but 13,000 feet of air per minute. The stoppings in the mine were generally in bad condition. The first door on the main entry was losing a large amount of air through an opening at the bottom. A door on the dark entry was so warped that it permitted a large volume of air to pass, and the general ventilation of the mine was unsatisfactory. I directed the mine boss to remedy the defects in the false work and to see that in the future break-throughs were made at regular intervals as is required by law.

No. 10.

This is a shaft mine, located in Trimble township, Athens county, and is owned by the Sunday Creek Coal Company. Mr. C. C. Sharp is superintendent and John A. Hopkins acts as bank boss. I visited this mine on June 9 by request of the mine committee to adjust some matters connected with the weighing of coal. It was found that the railroad scales were in some instances four or five feet too short for accurate weighing, and in order to secure correct weight, it required more than a little care in shifting the car. The differences between the company and the committee were speedily adjusted to the satisfaction of all, and the check weighman was accorded all the privileges necessary to carry forward his portion of the work. It was noticed that no safety gates had been provided at the top landing. These were ordered supplied at once. The interior of the mine was not inspected.

CENTRAL.

Is located near Lisbon, in Columbiana county. It is owned by Card & Prosser, with Thomas Prosser as superintendent and David Lewis as mine boss. On the evening of September 19, in driving an air course parallel to the main entry, which had fallen in, while drilling a hole the old works were tapped, through which fire damp escaped

in such quantities as to ignite from a naked lamp, thus setting fire to the mine. The miners in their escape, which was along the return air course, neglected to notify Mr. James Conley, who was supposed to have gone home. His presence in the mine was not discovered until the afterdamp was pouring through the slope mouth. An effort to rescue him was made by entering the intake air course, but this was found to be impossible, and upon the arrival of District Inspector Rees T. Davis an attempt was made to reverse the fan. This proved unsuccessful, but was repeated a number of times during the next day. Upon notice from District Inspector Davis the writer arrived early in the morning of the 21st, just as a party of rescuers was about to enter the mine for the fourth or fifth time. After another unsuccessful effort, covering about 30 minutes, during which a number of men were overcome, they returned to the surface. The fanhouse was then opened up and the error in construction was discovered and remedied. After this the fan produced about 14,000 feet of air per minute. The fresh air was forced through the mine for about two hours, after which the rescuing party entered the mine and without difficulty removed the body.

APPLEGATE

Is a small shaft opening sunk into the margin of the old Applegat mine, located in Brookfield township, Trumbull county. This opening was made for the purpose of removing the crop coal, which has been left by the former company. It is owned by the Witch Hazel Coal Company, of Youngstown. Mr. David Jacobs is superintendent and Duncan McDonald is bank boss. I visited this mine on November 9 in company with District Inspector Rees T. Davis for the purpose of investigating as to the cause of the death of James War Clarke, which occurred on October 22, 1898. The investigation developed the fact that the coal was nearly exhausted, and that for some time young Clarke had been engaged in pushing the coal from the working faces to the bottom of the shaft. Between 9 and 10 o'clock in the morning he came to the surface to eat his dinner after which he directed the engineer to hoist the cage in order that he might descend. While the cage was in the course of ascending Clarke walked from the engine house into the top of the shaft. In falling he struck the cross-beam of the ascending cage, killing him instantly.



SAMUEL LLEWELLYN.
INSPECTOR FIRST DISTRICT, COALTON, OHIO.

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DILLON

Is located in Mt. Pleasant township, Jefferson county. It is a drift opening into the Pittsburg seam of coal, and is owned by the Wheeling and Lake Erie Coal Company. Mr. J. J. Roby is superintendent and Wm. Fitzgerald is bank boss. This mine was visited on November 15, 1898, in company with District Inspector James P. Davis. It was found that the mine was suffering from the effects of a squeeze, which had crushed the pillars between five pairs of entries. This greatly injured the air course. Notwithstanding the fact that the fan was producing 32,500 feet of air per minute, at the head of the thirteenth and fourteenth east entries but 4,000 feet was passing. At the head of the fifteenth and sixteenth east entries 3,500 feet was in circulation, and at the head of the main entry there was 3,900. At the head of the fifteenth and sixteenth left entries there was no register. At the parting of the thirteenth and fourteenth left entries 5,900 feet was in circulation, while at the head of the entry there was but 1,050. At the head of the eleventh and twelfth entries 5,280 feet was passing, and at the parting of the eleventh left entry near the door 7,955 feet was in circulation. At the last break-through on the No. 11 entry 12,070 feet was registered at the face, of which there was 4,500 feet. The examination developed that aside from a general leveling off of the falls in the air course, there was little that could be accomplished until a pair of entries that were then being driven on the inside of the squeeze could be completed. It was estimated that this would require about six weeks.

REPORT OF SAMUEL LLEWELLYN,

Inspector of the First District, from November 15, 1897, to November 15, 1898.

Hon. R. M. HASSELTINE, Chief Inspector of Mines:

DEAR SIR: I have the honor of submitting to you the annual report of the mines in the First District for the year ending on November 15, 1898. During the later months of the year the coal trade resumed its old time activity and operators and miners show a hopefulness and buoyancy that has been absent in recent years. The work of the department has been well received and appreciated by those interested, and some improvement is observable in the general features of the work. In a number of old mines that were defective

when opened, these defects have become more pronounced, and it has been found difficult to secure speedy remedial measures, but their need is recognized, and will be acted on at the earliest possible moment.

In this connection it has occurred to me, and I give the suggestion for what it is worth, that the legal requirement as to the volume of ventilation is insufficient. In the mines where machines are used to cut the coal much of the mining is wrought at night, hence in the early morning hours large quantities of powder are exploded in blasting the coal, and the chambers and galleries are so filled with smoke that ordinary ventilation is inadequate to the speedy sweeping away of the noxious vapors. Again, in pick mines where the shooting is restricted to the last moments of the working day, where a miner has two or more shots to fire, the great volume of smoke produced is such as to make it dangerous to go back and ignite the last shots. If the required current would be 200 cubic feet per minute per person employed in the mine, the comfort and safety of the miner and others employed therein would be greatly enhanced at a slight additional cost.

The improvements and casualties are all noted in the tables and the body of the report. I am glad to acknowledge the courtesies and the pleasant reception accorded me in almost all my official visits by the miners and operators. I am grateful to yourself for your counsel and kindly criticism, which have aided me in my efforts to perform the duties of my position. I am,

Respectfully,

SAMUEL LLEWELLYN,
Inspector First District.

Coalton, O., November 15, 1898.

HOCKING COUNTY.

LOST RUN

Is situated on the Monday branch of the Columbus, Hocking Valley and Toledo railway, and is owned by the Lost Run Coal Company. Joseph Slater is superintendent and John Hallam and Conrad Savage were successively mine bosses. This is a drift mine into the No. 6 seam of coal, which is 10 feet in thickness at this point. It is worked on the double entry system and has fan ventilation. One hundred and thirty-seven miners and 32 day hands were employed here. For months during the early part of the year this mine was

idle. During that time a creep came over the blocks between the second and third north entries, cutting off the pillars therein almost entirely. Some of the falls reached the surface, forming a number of inlets, supplying the exhaust fan and lessening the ventilation at the faces that were being worked. On my last visit in October I ordered that they thoroughly shut out these inlets by brattices, as well as other leaks that were visible. The seam of coal is very faulty here.

SNAKE HOLLOW

Is located on the Monday branch of the Columbus, Hocking Valley and Toledo railway, and is owned by C. L. Poston & Co. C. Mellinger is in charge as superintendent and mine boss. This is a drift mine into the No. 6 seam of coal, which is here from six to eight feet in thickness. It is operated on the double entry system and is ventilated by fans. The coal is mined by electric machines. One hundred and sixty-five miners and 24 day hands were employed. This mine, with but few exceptions, is generally found in good order.

NO. 29

Is located at Murray City on the Snowfork branch of the Columbus, Hocking Valley and Toledo railway, and is operated by the Greendale Furnace Company. J. W. Miskell is superintendent and mine boss. This is a drift mine into the No. 6 seam of coal, which is here from six to eight feet in thickness. It is worked on the double entry system, and is ventilated by a fan. Seventy-one miners and 32 day hands were employed. This mine is generally found in fair condition. It will be exhausted during the coming season.

NO. 15

Is located at Sand Run on the Monday branch of the Columbus, Hocking Valley and Toledo railway, and is operated by the Jacoby Coal Company. George Jacoby is superintendent and Aaron Green is mine boss. It is a drift opening worked into the No. 6 seam of coal, which is from six to eight feet in thickness at this point. It is operated on the double entry system, and is ventilated by the exhaust of the boiler stack at No. 19. Fifty-seven miners and 15 day hands were employed. The ventilation was fitful and uncertain, and toward the close of the year a fan was erected and installed in the airway and the face of the main east entry, and thus an abundance

of ventilation was provided. The fan is operated by compressed air. With the exception of the ventilation, the mine was in fair condition.

NO. 19 SOUTH.

For sometime this mine has been worked in order to subjugate a fire that has been raging for years. During the year the mine was flooded and it is now closed.

MORRIS NO. 1

Is located at Sand Run on the Monday branch of the Columbus, Hocking Valley and Toledo railway, and is owned by the Hocking Coal and Railroad Company. J. W. Winder is superintendent and Andrew Stevenson and Wm. Powers were successively mine bosses. This is a drift opening into the No. 6 seam of coal, which is here from six to eight feet in thickness. It is worked on the double entry system, and is ventilated by a fan. Two hundred and thirty miners and 57 day hands were employed here. On the east side they have been drawing the pillars for some time, and will soon have that section of the mine completely worked out. The west side is very faulty, and the developments there are not very encouraging. At the close of the year conditions here were fair.

MORRIS NO. 2

Is located at Jobs on the Brush Fork branch of the Columbus, Hocking Valley and Toledo railway, and is operated by the Hocking Coal and Railroad Company. J. W. Winder is superintendent and Edward Fluke is mine boss. This is a drift opening into the No. 6 seam of coal, which is here from six to eight feet in thickness. It is worked on the double entry system, and has fan ventilation. Two hundred and twenty-six miners and 67 day hands were employed here. The mine was suspended from May to November. When visited in November the west side was found to be abandoned, and the men were employed on the south side, the extreme west of which was not very well ventilated. At the time of my visit a man was employed to close the stoppings in order to carry the current intact to all parts of the mine. It was being kept in good condition.

MORRIS NO. 3

Is located at Jobs and opposite the No. 2 opening. It is under the same management, and is operated by the same firm. This is a drift opening into the No. 6 seam of coal, which is here from six to eight

feet in thickness. It is an extensive mine, worked on the double entry system, and is ventilated by a fan. They have a rope haulage of one mile and an electric motor that is operated for more than 2,000 feet further into the mine. This mine was idle during the summer. Two hundred and fourteen miners and 71 day hands were employed at the time of my last visit. Early in the year the pillar work on the south end was found to be poorly ventilated; this was partially remedied. At my last visited the general ventilation was good, with the exception that there were too many men on one current. Those on the remote entries were compelled to endure much smoke. A new inlet toward the north is contemplated to freshen the current.

NEW PITTSBURG NO. 7

Is located at Blatchford on the Brush Fork branch of the Columbus, Hocking Valley and Toledo railway, and is operated by the New Pittsburg Coal Company. James R. Birkbeck is superintendent and Wm. Slater and George Butts were successively mine bosses. This is a drift into the No. 6 seam of coal, which is here from six to seven feet in thickness. It is worked on the double entry system, and is provided with fan ventilation. One hundred and sixty miners and 33 day men were employed. During the year I found deficiencies in the air currents in the working faces caused by leakages along the main airways and the inadequately kept doors. It was necessary to continually remind the authorities of the defects, and I ordered that repairs be made at once. This they would readily agree to do, but upon my next visit would develop defects of a like character. The sixth southwest entry is being pushed to connect with mine No. 19, in order to bring the coal in that region out through this mine.

NEW PITTSBURG NO. 8

Is located at the terminus of the Brush Fork branch of the Columbus, Hocking Valley and Toledo railway, and is operated by the New Pittsburg Coal Company. James R. Birkbeck is superintendent and James Johnson is mine boss. This is a drift mine into the No. 6 seam of coal, which at this point is from five to eight feet in thickness. It is conducted on the double entry system, and is ventilated by fans. One hundred and thirty-four miners and 34 day hands were employed here. The mine has been fairly ventilated during the year, with the exception of a few rooms at the head of the main entry of the old No. 6 mine, where they were required to provide a better return for the current and to repair the door at the mouth of

Black Snake entry. For a time the ventilation on the pillar work in the main entry was bettered by new provision made for the return of the air, the old outlet having been closed by falls and water. The brattices on the main north entry were required to be repaired a number of times. The mine is surrounded with faulty conditions of the seam, and it is not likely to be further extended.

NEW PITTSBURG NO. 9

Is located opposite the No. 8 opening and is in direct connection with the No. 7 mine to the south. It is operated by the same firm, and is in the same seam, which is here of the same general thickness. James R. Birkbeck is superintendent and Wm. Embleton is mine boss. This mine is worked on the double entry system, and is ventilated by a fan. One hundred and forty-five miners and 33 day hands were employed. The ventilation, especially on the northwest, has been fitful, caused by inattention to the brattices. In July a split from the fan entry was provided to furnish a fresher and more vigorous current in that section, and as the workings on the south side were lessened, it was enlarged. Faulty conditions of this seam surround this section, and its further extension is impracticable. The closing of the north side of the first southeast entry made it necessary to open a passage from fan entry to the first east near the main entry, to relieve a sluggishness on the little south entry off of the fourth southeast. This section of the mine is rapidly approaching exhaustion. The repairing of doors was a constant requirement and at times this was unnecessarily delayed. The authorities were ordinarily responsive to instructions, yet the rush of other business frequently led them to be neglectful of this important duty.

CONSOLIDATED.

This mine was suspended during the whole of the year. They are preparing to resume operations under a new management.

COALGATE

Is situated at the terminus of the Snow Fork branch of the Columbus, Hocking Valley and Toledo railway, and is operated by the Somers Coal Company. Z. Williams is superintendent and Watkins Lewis and Anthony Riggs were successively bank bosses. This is a drift opening into the No. 6 seam of coal, which is here from four to nine feet in thickness. It is worked on the double entry system and

is ventilated by a fan. Ninety-eight miners and 31 day hands were employed. The current of air was not always well distributed in this mine, as they have been dilatory in providing break-throughs in some of the rooms, and also in keeping the brattices intact. At my last visit on November 5 they had two inlets, one for the north and the other for the south side. Break-throughs are usually delayed because of a very tender roof, which is largely prevalent, as the mine on all sides is approaching the great fault that is an incident of this region. They appear to be diligent in correcting these defects when instructed to do so. On February 28 John Lenox was killed near the face of the main west entry. He, with John Pearson, was loading coal in the entry. The roof was rolling rock with slate in the cavities, and one of these cavities occurred near the face, where they were working. They tried to pull the slate down, but, failing in this, they fired a rib shot and filled three cars with coal. Then they determined to pull the slate down. The deceased stepped forward to remove his pick and shovel, when the slate fell and killed him.

CAWTHORN

Is located on the Monday branch of the Columbus, Hocking Valley and Toledo railway, and is operated by the Stalter Coal Company. Robert Stalter is superintendent and John Murphy is mine boss. This mine is composed of two drifts into the No. 6 seam of coal, which is here from six to eight feet in thickness. This mine is worked on the double entry system, and is ventilated by both a fan and a furnace. One hundred and thirty-seven miners and 26 day men were employed here. On the west side I found deficiencies in the ventilation, because of the indifferent service of the furnace, which was corrected. There was dilatoriness in keeping the brattices intact, which required repeated instructions to remedy. On both sides bad roof interfered with making break-throughs at the proper distances. On the east side the ventilation was fair. The roof on the north entries was very tender. Much of the entry was timbered during the year, otherwise the mine was in fair condition. I tested the scales here on May 4 and found them correct.

BEATTIE BROS.

Is located near Buchtel on the Snow Fork branch of the Columbus, Hocking Valley and Toledo railway, and is operated by Beattie Bros. & Co. James Beattie is in charge. This is a drift into the

No. 6 seam of coal, which is here about six feet in thickness. It is an opening into the north end of the old Buchtel mine, and is generally worked on the single entry system, and is usually ventilated by natural pressure, although they have a basket at the air shaft that may be used on occasion. Nineteen miners and three day men were employed here. On my last visit, October 4, the air was very sluggish, and they were ordered to keep a fire in the basket. A north entry was being driven from near the mouth of the mine to go to the surface. A number of men were working here in advance of the air current. I ordered that only the entrymen be employed there and that an airpassage be brought up as far as possible to ventilate that section.

BLACK DIAMOND

Is located near Haydenville, and is operated by the Haydenville Mining and Manufacturing Company. J. W. Jones is superintendent and Edward Lehman is mine boss. This is a drift opening into the No. 6 seam of coal, which is here from three to six feet in thickness. This mine is worked on the single entry system, and is ventilated by natural pressure. Nineteen miners and five day hands were employed. They are working on the north end of Tunner entry, which has a number of apertures to the surface. On the west side they were engaged in drawing the pillars. On the east side they had a block of coal to work out. Conditions were fair here, except that the seam of coal was not in a normal condition.

KITTANNING

Is located near Starr Station on the Columbus, Hocking Valley and Toledo railway, and is operated by the Kittanning Coal Company. Henry Collins is superintendent and J. W. Nail is mine boss. This is a drift into the No. 6 seam of coal, which is here about four feet in thickness. It is worked on the double entry system, and is ventilated by a furnace. Thirty-five miners and eight day men were employed. The mine was found in fair condition. Soon after my visit of November 19, 1897, the mine was suspended and has not since resumed.

MINES EMPLOYING LESS THAN TEN MEN.

Name of mine.	Kind of opening.	Name of owner or operator.	No. of miners.	P. O. address.
Kistler	Drift	John Kistler	7	Longstreth
Evans	"	Wm. E. Evans	2	Carbon Hill
Greens	"	Thomas Green	1	"
Coes	"	Dennis Coe	2	"
Smith	"	John Smith	2	"
No. 41	"	D. K. Nutter	2	Sand Run
Lama	"	J. M. Lama	3	Nelsonville
Buckeye	"	Washington Coakley	2	"
Cox	"	L. D. Cox	2	"
Cohagan	"	Cohagan & Achauer	2	Haydenville
Saunders	"	Flaval Saunders	2	"
Williams	"	Warren Lehman		"
CLAY MINES.				
Cotton Allen	"	Haydenville M. & M. Co.	7	Haydenville
Union Furnace	"	Columbus Brick and Terra Cotta Co.	12	Union Fur'ace

JACKSON COUNTY.

IRON VALLEY

Is located on the Ohio Southern railway extension east of Wellston, and is operated by the Valley Coal Company. L. V. Brown is superintendent and George Rowland is mine boss. This is a series of drifts into the No. 4 seam of coal, which is about four feet and four inches in thickness at this point. It is worked on the double entry and stoff system, and ventilated by furnaces. Ninety miners and 18 day men were employed. Early in the year operations were suspended, and up to this time there has been no resumption.

AETNA.

This mine has been suspended during the year.

RIVERTON.

Early in the year this mine was abandoned.

WAINWRIGHT

Is located east of Wellston on a switch of the Cincinnati, Hamilton and Dayton railway, and is operated by the Wainwright Coal Company. George Harrison is superintendent and George Hodges is

mine boss. This is a shaft, 95 feet in depth, into the No. 2 seam of coal, which is here from two to five feet in thickness. It has been conducted on the double entry and cutoff systems, and is ventilated by a fan. Eighty miners and 84 day men were employed. The ventilation at the face of the rooms was sluggish at times. The rooms crossed by the cutoffs were not being well bratticed. There has been a showing of fire damp at three places in this mine, and at close of the year a change was made in the route of air, the whole current being directed to breaks near the face of the second north entry, and flowing from thence east and west throughout the mine. By keeping brattices intact this will insure fair ventilation. The second east entry on the south side is deficient. It will very soon be abandoned. On July 23 the track scales were tested and were found to be very sluggish and losing weight on the last three drops of coal in loading. I ordered that the weighman balance the scales at every drop until repairs could be effected, subsequently the scale man overhauled them, and there was an improvement.

FLUHART NO. 1

Is located in South Wellston on the Baltimore and Ohio Southwestern and the Columbus, Hocking Valley and Toledo railways, and operated by the Fluhart Coal Company. T. J. Fluhart is superintendent and David Powell is mine boss. It is a shaft, 80 feet in depth, into the No. 2 seam, which is here from 33 to 48 inches in thickness. It is worked on the double entry system, and is ventilated by a fan. One hundred and twenty miners and 49 day men were employed. This mine is collecting a large quantity of water. A new pump has been installed on the south side, but the steam pipe leading to it is not satisfactory, and now they propose to operate it with compressed air. At times I found the ventilation unsatisfactory. For a time the return on the north was not good, subsequently they secured a return on the northwest into the Milton No. 2 mine, which was an improvement. The mine boss had to be reminded frequently that the brattices needed repairing. The south side roadways were slushy and disagreeable to all.

FLUHART NO. 2

Is located southeast of Wellston on the Cincinnati, Hamilton and Dayton and the Columbus, Hocking Valley and Toledo railway and is operated by the Fluhart Coal Company. Theo. J. Fluhart is superintendent and J. J. Donahue succeeded Thomas Stiff as mine

boss. It is a shaft, 167 feet in depth, into the No. 2 seam of coal, which is from 31 to 40 inches in thickness at this point. It is worked on the double entry system, and has fan ventilation. Thirteen miners and 32 day men were employed here. I found the ventilation of this mine very defective because of the choking up of the airways by falls of slate in the reopening, of which they would content themselves with the space gained by an orderly piling up of the debris. It is only a question of a short time when they will be closed. A squeeze near the east end shut off entirely the southeast entry. The main east entry remained open for some time after this, but toward the end of the year the squeeze closed the main east entry and part of the first northeast entry. Measures are to be taken to reopen this section. On June 21 Warren Townsend was killed on the Haskins entry. He and his son were drawing entry pillars. That morning he had been warned of possible dangers. He thought that he had securely posted his place, and he filled four cars of coal and was preparing to retire, when the roof felled him to the floor. Attempts were made to remove him, but before they were successful another fall came, and he was taken out dead. On August 25 Wm. Chandler was fatally injured in this mine. He was working with his sons in rooms Nos. 4 and 5 on the main east entry. In the afternoon he instructed the boys to prepare and fire two shots in room No. 5, while he retired to room No. 4. He was seated at the head of the road removing slack from his shoes, when the shot was fired and blew through the pillar. Some of the coal struck him on the head and inflicted serious injuries, from which he died on September 1. On September 9 I was called to this mine to test the scales. I found the hopper scales hanging awry on timbers that were too weak to bear pressure. These were ordered repaired. The next day I found them temporarily fitted up and weighing correctly, subsequently they were fitted up with adequate timbers and were servicable and correct.

FLUHART NO. 3

is located east of Wellston on a switch of the Baltimore and Ohio Southwestern railway, and is operated by the Fluhart Coal Company. Theo. J. Fluhart is superintendent and Edward Littlejohn, succeeded by T. B. Patrick, was mine boss. This is a shaft opening, 80 feet in depth, into the No. 2 seam of coal, which is here from two to four feet in thickness. It is conducted on the double entry system, and is ventilated by a fan. Eighty miners and 36 day hands find employ-

ment here. The ventilation was not satisfactory, but under present management there has been an improvement. Much water was found in this mine and fire damp shows itself. Ordinary care was used in providing against its misuse, thus far with good results.

WELLSTON NO. 1

Is located in Wellston on the Baltimore and Ohio Southwestern railway and is operated by the Wellston Coal Company. T. J. Morgan is superintendent and Patrick Doody and Cornelius Coyle were mine bosses successively. This is a shaft opening, 65 feet in depth, into the No. 2 seam of coal, which is here from 15 to 50 inches in thickness. It was worked on the double entry system, and has fan ventilation. Twenty-six miners and 14 day men were employed. Ordinarily the mine is fairly well ventilated. They are now drawing the main entry pillars, and will soon abandon the mine.

WELLSTON NO. 2

Is adjacent to the No. 1 opening and is operated by the Wellston Coal Company. T. J. Morgan is superintendent and Cornelius Coyle is mine boss. This is a shaft, 78 feet in depth, to the No. 2 seam of coal, which is here from two to four feet in thickness. It was worked on the double entry system, and has fan ventilation. Twenty-six miners and 15 day men were employed. They are engaged in drawing the main entry pillars, and this mine will be abandoned in the near future. During the year the main haulage was at times flooded with water and powerful pumps were used to drain it. On the 18th of November, 1897, Alvin Lindaner was killed by a fall of drawslate. He, with his son, was working in room No. 4 on the southeast entry. The drawslate was nearly 10 inches in thickness, and was left hanging without any support many yards from the face. They were at the face making ready for the second shot, when they heard the slate give a hissing sound. They ran back, but the slate fell and killed Mr. Lindaner.

WELLSTON NO. 3

Is located west of Wellston on a switch of the Cincinnati, Hamilton and Dayton railway, and is operated by the Wellston Coal Company. T. J. Morgan is superintendent and Robert Pope is mine boss. This is a shaft opening, 87 feet in depth, to the No. 2 seam of coal, which is here from three and one-half to four feet in thickness.

worked on the double entry system, and has fan ventilation. One hundred and sixty-eight miners and 42 day hands were employed. The ventilation was defective here at times because of great losses to abandoned workings on the east. Much work was done to remedy this state of affairs. Airways were cleaned out, but as they were not adequately timbered, they began to fill up again by the falling slate. A further cleaning and bratticing was ordered. On the 3d of January J. H. Smith was killed by a fall of slate. He was helping his neighbor, Wm. Shaner, to load a car of coal. When the driver hauled the car out it slipped back. The deceased jumped to the rear of the wagon to prevent it from going over the rails, when the slate fell and killed him instantly.

MILTON NO. 1

Is located in Wellston on the Baltimore and Ohio Southwestern railway, and is operated by the Milton Coal Company. T. J. Morgan is superintendent and George Davis is mine boss. It is a shaft, 76 feet in depth, to the No. 2 seam of coal, which is about four feet in thickness here. It is conducted on the double entry system, and has fan ventilation. One hundred and six miners and 40 day hands were employed here. The ventilation was sluggish at times on the east and west sides. The east entries have holed into the Eliza mine. On the west side they have holed into the Comet mine and Wellston No. 2, and on the southwest they have connected with the first west entry of Milton No. 2, and incorporated it with this plant, receiving their ventilation from the No. 2 mine. Mining machines are used on the southeast entry operated by electricity. Here the ventilation was improved. Pillars were partially drawn on the extreme east of the east entry, when a crush occurred, causing the loss of some pillars. The mine is kept clean and neat, and the entries fairly timbered. During the year a new curbing was put in the shaft. On December 10, 1897, three sets of scales were tested and found to weigh accurately.

MILTON NO. 2

Adjoins No. 1 on the south and is operated by the Milton Coal Company. T. J. Morgan is superintendent and Wm. Montgomery is mine boss. This is a shaft mine, 76 feet in depth, to the No. 2 seam of coal, which is here about three or four feet in thickness. It is conducted on the double entry system, and has fan ventilation. One hundred and eighteen to 179 miners and 44 to 57 day hands

were employed. The east side is operated by electric coal cutting machines, and an electric motor is in use on the main road for haulage purposes. The ventilation was not always sufficient, and the brattices and doors were allowed to become imperfect, with much loss of current. This was remedied from time to time. The east end of the mine is very wet, with much tender roof. The output is the largest of any mine in the county.

SUPERIOR NO. 1

Is located west of Wellston on the Ohio Southern and the Cincinnati, Hamilton and Dayton railways, and is operated by the Superior Coal Company. H. C. Murfin is superintendent and Joseph Carrington and W. J. Davis were mine bosses successively. This is a shaft opening, 100 feet deep, to the No. 2 seam of coal, which is here from 33 to 42 inches in thickness. This mine is worked on the double entry system, and is ventilated by a fan. One hundred and ten miners and 43 day hands were employed. This mine was fairly well ventilated except in January, when the No. 1 west entry on the south was deficient, but this has been improved. At the close of the year the ventilation was good and the mine was in fair order. Two crushes have occurred during the second half of the year. The one on the second north broke down the entry. This is being reopened and timbered. The other on the main haulway on the second west entry will cause them to sink a roadway, and they will have to blast the roof for passage. This part of the mine had been in use for 14 years. On September 6 Wm. W. Taylor was injured on the hand by a fall of coal, under which he was mining. He died on September 9, 1898.

SUPERIOR NO. 2

Adjoins on the east and is connected with No. 1. It is operated by the same firm and is under the same management, with W. J. Davis and Daniel J. Davis as mine bosses successively. This is a shaft opening, 85 feet in depth, into the No. 2 seam of coal, which is here from 34 to 45 inches in thickness. It is worked on the double entry system, and is ventilated by a fan. Ninety-five miners and 46 day hands were employed. The northwest of this mine has passed through a faulty section, where the roof was chaotic and very tender. It was very difficult to keep the air passages open. Toward the close of the year arrangements were made to ventilate this mine from the north end of Superior No. 1. The southwest was fairly

ventilated, but toward the close of the year by reason of the complete closing of an airway they were forced to bring the air from the fourth east entry to the southwest along the main haulway. As yet it has not proven the success anticipated. On July 13 Peter Nagle was found in his room under 700 or 800 pounds of slate. He had evidently been cutting out a shot that he had fired the night before. He had struck but a few blows when the slate fell upon him. The room above was smooth and slippery, so that it is not likely that he received any warning.

SUPERIOR NO. 3

Is located northwest of Wellston on a switch of the Baltimore and Ohio Southwestern railway, and is operated by the Superior Coal Company. O. B. Gould is superintendent and John M. James is mine boss. This is a shaft, 47 feet in depth, to the No. 2 seam of coal, which is here from 34 to 55 inches in thickness. This mine is worked on the double entry system, and has fan ventilation. One hundred and forty to 200 miners and 39 to 48 day hands were employed. This mine is fairly well ventilated, except that in their busiest season the steam resources were taxed to their utmost and the volume of air was lessened in consequence. During much of the year, however, work was slack here, and the number of miners was reduced. They propose adding another boiler to the plant. Much improvement has been made in leveling the roadways and timbering the entries and enlarging the facilities for handling coal.

SUPERIOR NO. 4

Is located near Ironton Junction on the Cincinnati, Hamilton and Dayton railway, and is operated by the Superior Coal Company, with O. B. Gould as superintendent and F. M. Hudson mine boss. This is a shaft, 77 feet in depth, into the No. 2 seam of coal, which is here from 30 to 40 inches in thickness. It is worked on the double entry system, and has fan ventilation. Seventy miners and 34 day men were employed here. The ventilation was fair, on the third and fourth east entries south and north it was sluggish at times. Most of the coal on the south side lies low in the water, making it very disagreeable for the miners. Efforts were made to drain this section and to better ventilate it. This mine was suspended from March 31 to November 14. The first west entry on the south was abandoned, at the resumption which shortened the route of current and improving it in the south entries. The roof is very tender in the west entries and men were employed to aid the miners in securing it.

SUPERIOR NO. 5

Is located at Coalton on the Cincinnati, Hamilton and Dayton railway, and is operated by the Superior Coal Company. George Wheldon is superintendent and Evan T. Davis is mine boss. This is a drift opening into the No. 2 seam of coal, which is here a few inches to three and one-half feet in thickness. It is worked on the single entry system, and has fan ventilation. The employees have varied from 105 miners and 50 day hands to 68 miners and 46 day hands. From May 23 until September this mine was practically suspended because of water on the main haulway. A gasoline engine and pump were installed and good drainage was effected. The ventilation here was fitful. The fan is an exhaust, and is located one-half mile in the rear of the working faces, and it has been an arduous task to prevent the outlet current from being drawn in undue proportion through the abandoned workings. Early in the year an inlet shaft was sunk on the north entry. Operations are now conducted in the extreme north and south, the five middle west entries being abandoned because of the coal being too thin to work.

SUPERIOR NO. 6

Is located east of Wellston on the Cincinnati, Hamilton and Dayton and the Ohio Southern railways, and is operated by the Superior Coal Company. O. B. Gould is superintendent and Wm. Cooker is mine boss. This is a slope into the No. 2 seam of coal, which is here from 34 to 45 inches in thickness. It is worked on the double entry system, and has fan ventilation. Eighty-five miners and 35 day hands were employed. The north side of this mine is nearly exhausted, and they are beginning to draw the pillars. This is also true of the southwest. The southeast is still developing. A large body of water in the old workings north of this section was tapped and the result was a complete overflowing of these entries. A gasoline pump is being put in position and a complete drainage is proposed. This mine is fairly well ventilated and is otherwise in good order.

ELIZA

Is located near Wellston on the Baltimore and Ohio Southwestern railway, and is operated by the Eliza Coal Company. Richard Davis is in charge as superintendent and mine boss. This is a shaft, 75 feet in depth, to the No. 2 seam of coal, which at this point is from two to three and one-half feet in thickness. It is worked on the cut

system, and is ventilated by means of a fan. Eighteen miners and eight day men find employment here. The mine has been fairly well conducted during the year in spite of numerous obstacles.

COMET

Is located west of Wellston on the Ohio Southern railway, and is operated by the Comet Coal Company. Peter Gallagher is superintendent and mine boss. This is a shaft opening, 68 feet in depth, to the No. 2 seam of coal, which is here from three to three and one-half feet in thickness. It is worked on the double entry system, and has fan ventilation. Fifty miners and 21 day men were employed. The principle workings are in the southeast corner of the tract, and as the fallings in the rear sections have more or less disturbed the air passages the ventilation was sluggish at times, especially in the first working east entry, requiring a reopening of the passages and a closing of the leaks on the main entry. In September the mine boss was working to extricate a cage that had become lodged in the shaft 18 feet from the surface, when the cage fell to the bottom of the shaft. He, falling after it, was found lying on the cage unconscious and badly bruised. He has since recovered from the effects of the fall.

ALMA

Is located near Glen Roy on the Cincinnati, Hamilton and Dayton and the Ohio Southern railways, and is operated by the Alma Coal Company. C. K. Davis is the superintendent and George House is mine boss. It is a shaft opening, 72 feet in depth, to the No. 2 vein of coal, which at this point is from 32 to 42 inches in thickness. It is worked on the double entry system, and has fan ventilation. One hundred and seventy miners and 43 day hands were employed part of the year, but a much less number during the summer trade. Since March 31 the cutting and hauling of coal by electricity has been abandoned and pick mining and mule haulage was restored. The south line entries and first west entry north and south have been deficient in ventilation. On the extreme southeast they had holed into the Corwin mine and were losing current there. This has since been thoroughly bratticed off. The filling of last breaks in rooms by the slate men has been rife to some extent, but this has been remedied by each miner brushing his own roadway. There has been a dilatoriness in preserving the brattices and doors intact, requiring instructions in this regard at every visit.

ADA NO. 2

Is located near Glen Roy on the Ohio Southern railway, and operated by the Ada Coal Company. N. M. White is superintendent and C. Smith is mine boss. This is a shaft opening, 110 feet depth, into the No. 2 seam of coal, which is here from three to four and one-half feet in thickness. It is worked on the double entry system, and is ventilated by a fan. Ninety-five miners and 84 hands were employed. This mine is generally found to be in good condition. During the summer a boiler was added to increase steam power.

STANDARD

Is located in Glen Roy on the Ohio Southern and the Cincinnati Hamilton and Dayton railways, and is operated by the Standard Coal Company. Moses Morgan is superintendent and Daniel Jones is mine boss. This is a shaft opening, 85 feet in depth, into the No. 2 seam of coal, which is here from two to three and one-half feet in thickness. It is worked on the single entry system, and has fan ventilation. Forty miners and 17 day men were employed. This is an old mine, with a very tender roof in many places. The airways are frequently being choked by falls and new ones have been made to intersect the main airway near the inlet. The central portion is fairly well ventilated, but the extreme north and south portions are fitfully supplied. The haulage from the north is through an entry that is heavily timbered and diligence has been shown in preserving the safety of the persons employed.

NORTHERN

Is located west of Glen Roy on the Ohio Southern and Cincinnati Hamilton and Dayton railways, and is operated by the Northern Coal Company. D. C. Jones is superintendent and Daniel C. Jones is mine boss. This is a shaft opening, 45 feet in depth, into the No. 2 seam of coal, which is here from 30 to 40 inches in thickness. It is worked on the single entry system, and has fan ventilation. Forty-seven miners and 18 day men were employed. Ordinarily this mine is fairly well ventilated, excepting the sixth west entry, the closing of an airway giving some trouble there. Their contiguity to Emma and Acorn mines is coincident with a large flow of water which interferes materially with the operations in the east entries. (The south side is in operation, and in six months this section will be abandoned.

JONES OR MORGAN NO. 3

Is located west of the Northern mine on the Cincinnati, Hamilton and Dayton and the Ohio Southern railways, and is operated by Jones & Morgan. Moses Morgan is superintendent and David Jones is mine boss. This is a slope opening into the No. 2 seam of coal, which is here from 32 to 48 inches in thickness. It is conducted on the single entry system, and is ventilated by a fan. Fifty-five miners and 24 day hands were employed. This mine is always found to be well ventilated. During the year a squeeze temporarily cut off the operation of the fourth and fifth west entries. This mine is well cared for.

EMMA NO. 1

Is located at Altoona on the Ohio Southern and the Cincinnati, Hamilton and Dayton railways, and is operated by the Emma Coal Company. Edwin Jones is the superintendent and Victor E. Sullivan mine boss. This is a shaft opening, 50 feet in depth, to the No. 2 seam of coal, which is here from 30 to 40 inches in thickness. It is worked on the single entry system, and is ventilated by a fan. Thirty-eight miners and 17 day men were employed. This mine was fairly well ventilated during the year. There are but few rooms yet to be worked, and they propose to begin drawing pillars on the south side soon. They will probably try to reach some coal left on the south side before abandoning the mine.

EMMA NO. 2

Is situated a half-mile north of the No. 1 opening on the Ohio Southern railway, and is operated by the Emma Coal Company. Edwin Jones is the superintendent and August Ruff is mine boss. This is a shaft opening, 100 feet in depth, into the No. 2 seam of coal, which is here about three feet in thickness. It is worked on the double entry system, and is ventilated by a fan. One hundred and ten miners and 25 day men were employed. For some months during the summer the mine was suspended. Ordinarily they were required to repair brattices in order to keep the current in force at the head of the entries. By this means fair volume was provided, but at times this was dissipated by leaks. Breaks in rooms were frequently found choked with slate from the roadway. I ordered that this be kept cleared, otherwise the mine was kept in fair condition.

EMMA NO. 8 (FORMERLY JACKSON HILL)

Is located on the Springfield switch of the Ohio Southern railway, and is operated by the Emma Coal Company. Edwin Jones is the superintendent and J. D. Richards is the mine boss. It is a drift opening into the No. 2 seam of coal, which is here from two to three feet in thickness. It is worked on the single entry system, and has furnace-ventilation. Eighty-seven miners and 31 day men were employed. Two furnaces have been in use to perfect the ventilation, and when the brattices are in good order, as they have been at times, the ventilation at this mine is good. But there were times during the year when the brattices were defective and the current was sluggish in consequence. The remedy was readily applied when ordered by the inspector, otherwise this mine was found to be in good order.

TOM CORWIN NO. 1

Is located south of Glen Roy on the Ohio Southern and the Cincinnati, Hamilton and Dayton railways, and is operated by the Tom Corwin Coal Company. W. I. Cherrington and John Harper were superintendents successively and Charles Trace is mine boss. This is a shaft opening, 90 feet in depth, into the No. 2 seam of coal, which is here from 30 to 40 inches in thickness. It is conducted on the double entry system, and has fan ventilation. From 64 to 150 miners and 50 to 54 day men were employed. During the summer months the east side was suspended and about half of the miners were employed in the low coal on the west side. The ventilation was barely passable. Upon resuming work on the east side the main east airway was found to be partially closed. It was ordered reopened at once. Even then it proved to be lacking in air tight qualities. A fan was promised at the face of the first east entry. The fan came, but was set up on the ninth northeast entry. It fairly supplied that section of the mine, but the improvement on the east side was not sufficient at the close of the year, and further measures are required to make it efficient. The electric motors are in use to convey the coal to the shaft bottom from the fourth east entries on the north and south sides.

TOM CORWIN NO. 2

Is located northwest of Wellston on the Baltimore and Ohio Southwestern railway, and is operated by the Tom Corwin Coal Company. Elmer H. Robertson is superintendent and Joseph Harper and

Martin Welsh were mine bosses successively. This is a shaft opening, 35 feet deep, into the No. 2 seam of coal, which is here from two to three feet in thickness. It is worked on the double entry system, and has fan ventilation. Twenty-six miners and nine day men were employed. Electric machines are used to cut the coal. Only the first east entry was in operation during the year. Some difficulty was experienced in controlling the water present in the north side rooms and entry. On March 14 I tested the Hopper scales and found them weighing correctly.

CENTRAL

Is located on the Ohio Southern railway, between Coalton and Glen Roy, and is operated by the Central Coal Company. D. Armstrong, Jr., is the superintendent and Sherman Walker is bank boss. This is a slope opening into the No. 2 seam of coal, which is here from one to two feet in thickness. It is worked on the single entry system, and has fan ventilation. Twenty miners and seven day men were employed. Early in the year the entry work was abandoned because of the thinness of the seam, and they began to draw the pillars. The ventilation was fair, and the mine was in good condition. In September the Hoppers and the engine house were burned to the ground and the mine has been suspended to this date.

ACORN SLOPE

Is located southwest of Glen Roy on the Ohio Southern and the Cincinnati, Hamilton and Dayton railways, and is operated by the Jones Coal Company. J. E. Jones is the superintendent and H. C. Chapman is mine boss. This is a slope opening, 400 feet in length, to the No. 2 seam of coal, which is here from 30 to 40 inches in thickness. It is worked on the double entry system, and has fan ventilation. Sixty-five miners and 19 day hands were employed. At times the ventilation was defective because of failure to keep the brattices intact. The whole mine is to be overhauled. On October 31 Charles A. Rice, who was employed as hitcher at the bottom of the slope, mounted the front end of the last trip up the slope and rode safely for about 300 feet, when he came in contact with the roof and was thrown under the train and badly mangled. He died the next day. He rode the train in spite of prohibitory orders in regard to that.

JONES NO. 2

Is located on the Ada switch of the Ohio Southern railway, and is operated by the Jones Coal Company. John E. Jones is superintendent and Enos Miller is mine boss. This is a short slope into the No. 2 seam of coal, which is nearly three feet in thickness at this point. From 55 to 72 miners and from 14 to 20 day men were employed here. It is worked on the single entry system, and has fan ventilation. The most part of the main airway has been abandoned and the current carried to the head of the workings on the old main entry. At the close of the year the ventilation was fair and the condition of the mine was good. The rooms from the second east entry have holed into the Hurd Shaft mine.

BUCKEYE

Is located west of Coalton on the Cincinnati, Hamilton and Dayton railway, and is operated by the Buckeye Coal Company. Marion Kessinger is superintendent and Philip Emmons is mine boss. This is a drift opening into the No. 2 seam of coal, which is here from two to three and one-half feet in thickness. It is worked on the single entry system, and is ventilated by a furnace. Forty-two miners and 11 day men were employed. During the year a new air shaft was sunk on the north entry and a furnace was erected. Conditions are fair here.

VICTOR NO. 1

Is located near Coalton on the Cincinnati, Hamilton and Dayton railway, and is operated by T. J. Evans & Co. T. J. Evans is superintendent and John Whiting is mine boss. This is a drift opening into the No. 2 seam of coal, which is here from 13 to 30 inches in thickness. It is worked on the single entry system, and is amply ventilated by a furnace. Fourteen miners and five day men were employed. This mine was generally found in good condition.

HIGGINS

Is located west of Coalton, and was operated by the Gail Coal Company. J. W. Higgins is superintendent and Daniel Williams is mine boss. This is a drift opening into the No. 2 seam of coal, which is here about 30 inches in thickness. It is worked on the single entry system, and is ventilated by a fire in the air shaft. Eleven miners and two day men were employed. The old opening was abandoned and a new one made on the eastern edge of the hill. There are but

few acres of coal here. They have holed into the old mine along the crop line. During the year they passed through an immense roll that cut the coal out completely. The mine was in fair condition.

HIPPLES

Is located at Coalton on the Ohio Southern railway, and is operated by the Hipple Coal Company. W. D. Hipple is superintendent and James Gascoyne is mine boss. This is a slope opening into the No. 2 seam of coal, which is here from two to three feet in thickness. It is worked on the single entry system, and has fan ventilation. Twenty-four miners and 11 day hands were employed. This mine is nearly exhausted. They have holed into the Springfield, Lucy and the Eagle mines, and are now working on the pillars, which will give them employment for some time to come. Conditions here were fair.

COALTON NO. 3

Is located near Coalton on the Ohio Southern railway, and is operated by the Coalton Coal Company. Norris Cameron is superintendent and George Cameron is mine boss. This is a slope opening into the No. 2 seam of coal, which is here from 30 to 36 inches in thickness. It is worked on the single entry system, and has furnace ventilation. Forty-two miners and 14 day men were employed. The ventilation was sluggish at times for lack of tight brattices and room doors and the proper stoking of the furnace. Improvement was necessary in three places, and this was partially secured. The entry pillars are being drawn on the north side, the most of the work being in the southeast section. During the summer the mine was mostly suspended.

SPRINGFIELD

Is situated on the Springfield switch of the Ohio Southern railway, and is operated by the Chapman Coal Company. John E. Hayes is superintendent and Wm. Eismagle is the mine boss. This is a drift opening into the No. 2 seam of coal, which is here from 31 to 40 inches in thickness. It is worked on the single entry system, and is ventilated by a fan. Seventy-five miners and 28 day men were employed. The air is often found sluggish in the faces of the entries because of dilatoriness in keeping the brattices and room doors in proper repair. During the summer a shaft was sunk on the southern side of the mine. Switches and a modern hopper were being provided. The coal is to be brought out of this opening. On August 24 the Hopper scales were tested and found to weigh correctly.

GRACE

Is located on the Ada switch of the Ohio Southern railway, and is operated by the Chapman Coal Company. John E. Hayes is superintendent and Edmund Gregory is mine boss. This is a shaft, 90 feet in depth, into the No. 2 seam of coal, which is here from 30 to 36 inches in thickness. The mine is worked on the single entry system, and has fan ventilation. Sixty miners and 23 day men were employed. This mine is generally found to be in good condition. On August 24 I tested the scales, which I found to weigh correctly.

ECLIPSE

Is located on the Springfield switch of the Ohio Southern railway, and is operated by the Eclipse Coal Company. E. O. Roberts is the superintendent and E. T. Hopkins is the mine boss. This is a drift opening into the No. 2 seam of coal, which is here from 25 to 38 inches in thickness. It is worked on the single entry system, and has natural and furnace ventilation. Thirty-five miners and 12 day hands were employed. The two southwest hills are nearing exhaustion. Another opening is being provided on the northwest hill to continue the exploitation of the tract. Conditions are not always good here, owing to dilatoriness in keeping the brattices intact, but efforts in that line were renewed upon being demanded.

PRICE

Is located on the Price switch of the Ohio Southern railway, and is operated by Gosline & Barbour. J. C. Hurd, Jr., is superintendent and George Hayth mine boss. This is a drift opening into the No. 2 seam of coal, which is here about 26 inches in thickness. It is worked on the single entry system, and has furnace ventilation. Forty miners and 14 day men were employed. At times the air in this mine was sluggish, requiring additional claying of brattices and repairing of room doors.

STAR NO. 3

Is located near Jackson, and is operated by the Star Furnace Company. Henry Price is in charge. This is a slope opening into the No. 1 seam of coal, which is here nearly four feet in thickness. It was worked in a variety of ways, and before the close of the year it was exhausted. Nineteen miners and 20 day men were employed. The coal here is mined by compressed air machines. In November

ground was broken for a new mine in Liberty township, to be known as Star No. 4, the product of which is to serve as fuel for the Star furnace at Jackson.

GLOBE

Is located near Jackson, and is operated by the Globe Iron Company. Elias Crandall is superintendent and John J. Jenkins is mine boss. This is a shaft, 111 feet in depth, into the No. 1 seam of coal, which is here from 30 to 45 inches in thickness. It is worked on the double entry system, and has fan ventilation. Forty-two miners and 11 day men were employed. This mine is kept in fair condition.

JONES OF OAK HILL

Is located at Oak Hill on the Portsmouth branch of the Baltimore and Ohio Southwestern railway, and is operated by the Jones Coal Company. Ebenezer Jones is the superintendent and Samuel Stattin is the mine boss. Later he was succeeded by George Yates. This is a drift opening into the No. 5 seam of coal, which is here about three feet in thickness. It is worked on the single entry system, and is ventilated by a basket. Seventeen miners and three day hands were employed. This mine is fitfully conducted. A new air shaft was sunk, which improved the ventilation. A curtain was used on the main working entry, which they were required to replace with a substantial door, and I ordered that they pay more attention to the fire in the basket. A grate was finally put in, which, when attended to, furnished ample ventilation.

OAK HILL

Is located at Oak Hill, and is operated by the Oak Hill Fire Brick Company. J. J. Thomas is superintendent and Jesse Smith is mine boss. This is a drift opening into the No. 5 seam of coal, which is here about 30 inches in thickness, with a stratum of fire clay above it, which is excavated in conjunction with the coal. This is worked on the single entry system, and is ventilated by a basket in the air shaft. Eleven miners and two day men were employed. The condition of this mine is fair.

DAVIS OF OAK HILL

Is located at Oak Hill on the Baltimore and Ohio Southwestern railway, and is operated by Davis & Thomas. Thomas Davis is superintendent and Evan J. Evans is mine boss. This is a drift opening

into the No. 5 seam of coal, which is here three feet in thickness. It is worked on the single entry system, and is ventilated by a furnace. Twenty miners and five day hands were employed for a short time during the year. The mine was in fair condition. It was operated irregularly for brief periods during the season.

MONROE

Is located near Monroe Station on the Portsmouth branch of the Baltimore and Ohio Southwestern railway, and is operated by the Briggs Coal Company. C. H. M. Cosad was superintendent and Charles Harrison is mine boss. This is a drift opening into the No. 8 seam of coal, which is here about four feet in thickness. Only 20 inches of this is merchantable. It is worked on the single entry system, and has furnace ventilation. Twenty-eight miners and 12 day hands were employed. The mine is fairly well conducted. In February operations were suspended and the mine has not resumed up to this time.

MINES EMPLOYING LESS THAN TEN MEN.

mine.	Kind of opening.	Name of owner or operator.	No. of miners.	P. O. address.
2.	Drift.	Poole, Pritchard & Hanna	5	Glen Roy
	"	Poling Coal Co.	2	Dayton
	"	Coalton Coal Co.	8	Coalton
	"	Allen Stiff.	2	"
	Slope	Peter Boylan, Sr.	5	"
	Drift.	H. Hutchison	2	"
	"	Henry Goodrich	2	"
	"	George Sells	2	"
	"	Jack Cochran	4	"
	"	C. Haslett.	2	"(s'p'n'd)
	"	Benj. Byers	1	Leo
	"	Jacob Faulkner	6	Leach
	"	Garfield Coal Co.	7	Coalton
	"	Wm. Rowes	2	"
	"	Jacob Houser.	5	Chapman
	"	John Brown	4	"
	"	Wm. Chambers	2	"
	"	Edward Howe	6	J'k'n (s'p'n'd)
	Slope	John Thompson	6	Jackson
	Drift.	Wm. Peake	8	Coalton
Bradshaw	"	Dempsey & Bradshaw	8	"
	"	John Law	4	Jackson
W.	"	Andrew Law	1	"
	"	C. W. Law	5	"
	"	Wm. Law	5	"
	"	Herbert Trago	2	"
	"	James Bryant	4	"
	"	Charles Green	4	"
	"	Samuel Wartenber	2	"
	"	Albert Lackey	4	Rocky Hill
	"	J. D. Thomas	2	Oak Hill
	"	John H. Davis	2	"
	"	John Evans & Bro.	2	"
	"	Burt Lucas	2	"
	"	Ward Coal Co.	9	"
	"	Elsnagle & Haughton	2	Jackson
	"	Magruder & Hamer	2	"

VINTON COUNTY.

ELKO

at Vinton Station on the Baltimore and Ohio Southwest-
y, and is operated by the Elko Coal Company. George
is the superintendent and W. S. Williams is mine boss.
shaft opening, 140 feet deep, into No. 2 seam of coal, which
is from two feet to 38 inches in thickness. It is worked on the

double entry system, and is ventilated by means of a fan. Seventy-four miners and 30 day hands were employed here. The east side of the mine was suspended during the year. The west side has developed into thin coal. These conditions have materially reduced the output. This mine is always found in a condition favorable to health and security.

HEASLEY

Is located at Zaleski on the Baltimore and Ohio Southwestern railway, and is operated by Hezekiah Heasley, who is the superintendent. O. L. Essex was mine boss at the close of the year. This is a drift opening into No. 4 seam of coal, which is here about 33 inches in thickness. It is worked on the single entry system, and uses furnace ventilation. Twenty miners and four day men were employed. Late in the year the old openings were abandoned. A new mine was opened 400 yards south. The main entry has been driven 210 feet. A good air shaft has been provided and a furnace will soon be built. Conditions here are favorable.

INGHAMS

Is located at Inghams on the Baltimore and Ohio Southwestern railway, and it is operated by the Ingham Coal Company. R. R. Marquis is the superintendent and G. W. Dexter is mine boss. This is a drift opening into the No. 5 seam of coal, which is here about 34 inches in thickness. It is worked on the single entry system, and is provided with a fire in the air shaft, which furnishes the ventilation. Twelve miners and three day hands were employed. When visited on August 29 I found the stack of the air shaft had been destroyed by fire, and as the shaft was shallow it was only occasionally that a fire would act properly, hence they were trying to work without any ventilation. I ordered that the stack be rebuilt, which was done within a few days, the mine being idle meanwhile. Since that time the condition of the mine has been fair.

ORETON

Is located at Oretton on the Columbus, Hocking Valley and Toledo railway, and is operated by the Poling Coal Company. Wm. Ellis was superintendent and mine boss. This is a drift opening into the No. 4 seam of coal, which is here from four feet to four feet and four inches in thickness. It is worked on the single entry system, and is ventilated

by a furnace. Thirty-eight miners and eight day hands were employed here. Conditions at this mine were fair. It was irregularly worked.

STAR NO. 2

Is located near Hawks Station on the river division of the Columbus, Hocking Valley and Toledo railway, and is operated by E. W. Keck & Co. E. W. Keck is superintendent and Sanford Freeman is mine boss. This is a drift opening into the No. 4 seam of coal. It is worked on the cutoff system, and has furnace ventilation. Sixteen miners and four day hands were employed. During the year an air shaft was sunk and a crude furnace built, which, when fired, furnishes good ventilation. During the summer but two or three men were employed.

RACCOON

Is located at Minerton on the river division of the Columbus, Hocking Valley and Toledo railway, and is operated by John L. Lawler, he being the superintendent and George Kavanaugh mine boss. This is a drift opening into the No. 4 seam of coal, which is here about four feet eight inches in thickness. It is worked on the single entry system, and is ventilated by a furnace. Forty-five miners and 10 day hands were employed. This mine is generally found in fair condition. The furnace, when properly fired, will furnish an abundance of ventilation, and it is fairly well distributed. This mine is drained by ditching, for when heavy rains prevail the inlet through crevices in the lime rock is torrential, and for a time the haulway is inundated. A new drain to the surface on the east side will partially remedy this condition.

MINES EMPLOYING LESS THAN TEN MEN.

Name of mine.	Kind of opening.	Name of owner or operator.	No. of miners.	P. O. address.
Mill.....	Drift..	Gilman & Ward.....	1	McArthur
Winters.....	"	Enos T. Winters.....	5	"
Smith Bros.....	"	Wm. Smith.....	4	"
Dewalts.....	"	J. S. Dewalt.....	2	Minerton

SCIOTO COUNTY.

BLOCK ORE OR OHIO FURNACE (IRON ORE MINE)

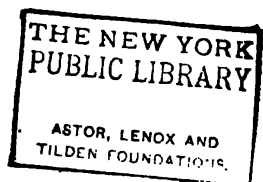
Is located near Gervais, and is operated by Means, Kyle & Co. T. J. Doty is the superintendent and John Coyer is the mine boss. This is a drift opening into the Block Ore seam of coal, which varies in thickness from six to 24 inches at this point. It is worked on the single entry long wall system, and is ventilated by a furnace. Fourteen miners and five day men were employed. When last visited on August 24 it was reported that the ore was not proving suitable for the purposes of the firm, and they talked of abandoning the plant for the present. In March there were 32 miners employed. On August 22 James Ditty, 16 years of age, was instantly killed by fall of roof on the main entry, caused by two sets of double timber being displaced by a car of clay, which the deceased was guiding. The car was moving by force of gravity, he being on the rear end of it. It seems that some large blocks of clay in the car were left jutting too far over the side, and this striking the timber caused it to swerve and by its momentum strike out the timbers. The lagging was forced down and the debris completely covered the car and the boy. The bringing out of the car was voluntary on the part of the deceased. It not being a part of his duty, his unfamiliarity with the work doubtless contributed to the accident. It occurred about the noon hour, when those in charge of the mine were absent at dinner.

MARSH

Is located near Eifort on the Portsmouth branch of the Baltimore and Ohio Southwestern railway, and is operated by W. E. Marsh who is also superintendent. C. Dickens is mine boss. This mine consists of a series of drifts in the No. 4 seam of coal, which is here about three feet in thickness. The drifts are driven through the ridge as single entries, and are ventilated by natural pressure. Thirty miners and six day men were employed. During the summer a much less number are at work. The conditions at this mine are fair.



ALEX BEATTIE,
INSPECTOR SECOND DISTRICT, NELSONVILLE, OHIO.



MINES EMPLOYING LESS THAN TEN MEN.

Name of mine.	Kind of opening.	Name of owner or operator.	No. of miners.	P. O. address.
Norths.....	Drift..	John North.....	6	Gervais

REPORT OF ALEX BEATTIE,

Inspector of the Second District, from November 15, 1897, to July 15, 1898.

Hon. R. M. Haseltine, Chief Inspector of Mines:

DEAR SIR: In compliance with the custom of the Mining Department I herewith submit my seventh annual report of my visits to the mines of the Second District of the State of Ohio, from November 15, 1897, to July 15, 1898. In my endeavor to fully discharge the duties of District Inspector of Mines I have visited the collieries under my charge as often as time and the other duties of the office would permit. While a large per cent. of the mines were always found in first-class condition, I frequently found one in a state of disorder due to the various elements of danger that follow in the wake of the miner's avocation. In some instances it was necessary to cause a cessation of operations until the safety of the workmen from these dangerous obstacles was secured. While always keeping in view the importance of good ventilation and other sanitary conditions essential to health in the coal and other mines of my district it has been my highest aim in the discharge of their obligation to preserve the lives of the workmen entrusted to my charge, but notwithstanding my multifarious admonitions for vigilance and care, five of our craftsmen met with untimely deaths in the mines of this district during the time covered by this communication, in a manner that should be a lasting premonition to the living to observe the rule of self-preservation. The unfortunate accidents all occurred in Athens county, one each in the following mines: Halbert, Bessie, Williams, No. 6 and No. 10. A full account of each is given in my detailed report of these mines on another page of this book.

It is also with a feeling of studious concern for the future of the coal industry and those dependent upon it for sustenance in this section of the State that I note the continued depression of the coal trade during the period covered by this report and the intervals of inactivity in that great labor providing enterprise, which have been even more prolonged and the prospects less promising than during the era covered by my previous reports. I may also add that the state of affairs is probably due to the rapidly increasing competition of the low-priced product of the cheaper coal fields of other states.

In severing my official connections with the Department of Mines of the State of Ohio, permit me to say that while I claim completeness for my work in that department during my incumbency, yet I feel secure that at least there has been no retrogression. I wish to express my appreciation of the obligations I owe to my officials, operators and miners. It is also a pleasure to me to assure you of the continuance of my friendship and my high appreciation of your valuable counsel, and the able, unbiased manner in which you have presided over your department.

With pleasant recollections of our associations, which I will always cherish, and with best wishes for your future, I am,

Very respectfully,

ALEX BEATTIE,

Inspector Second District.

Nelsonville, Ohio, July 15, 1898.

ATHENS COUNTY.

RARA AVIS

Is located near Chauncey, a station on the line of the Kanawha and Michigan railway, and is operated by the Chauncey & Beaumont Coal and Coke Company. William Job is general manager and Benjamin Hill is mine boss. Fifty-four coal fillers, eight cutters, one driller and 16 day hands were employed. This is a shaft mine sunk during the year, and will be worked on the tripple entry system if the interior plans be followed. A fan is used as a means of ventilation. This mine penetrates the No. 6 seam of coal, which varies in thickness from four to six feet at this point. It is mined by machines operated by compressed air. The shaft, tippie, engine and boiler house are complete in every detail and modern equipment. The engine house is a brick structure 20 feet six inches by 60 feet and is equipped with 300-horse power boilers, a powerful air compressor.

pressor and a first motion hoisting engine 20 by 36 inches. The shaft is 125 feet in depth with automatic or self-dumping cages raised and lowered by an inch and an eighth steel cable wound over a six-foot drum. The coal is dumped over the regulation screen into a hopper, where it is weighed. It is then taken over a horizontal picking belt four by 30 feet, where boys separate the refuse matter from the coal as it passes along to a small screen at the other end of the belt. While passing over the latter into the railroad cars it is separated into four grades of coal, namely, lump, cobble, nut and pea. A slope is provided as a place of egress and ingress, and is connected with the main entry 500 feet west of the bottom of the shaft, which is divided into two apartments by a wooden partition extending from the top to the bottom of the slope. One apartment is used for taking the stock and mine supplies into the mine, and the other is provided with convenient steps from top to bottom, and is used as a place of ingress and egress for the miners and the intake for air, at the top of which is placed a reverse fan three feet six inches by 15 feet in diameter, which is used as a means of ventilation. Two visits were made to this mine during the time covered by this report, on March 9 and June 4, when large forces of workmen were engaged in pushing the various departments to completion. When finished I feel justified in saying that the mine will be in excellent condition.

NEW NO. 29

Is located one and one-half miles west of Nelsonville on the line of the Columbus, Hocking Valley and Toledo railway. It is operated by two separate companies, Wilson & Siddle employing 20 miners in mining the marketable coal, with Morris Wilson as superintendent and Press Siddle mine boss. Conaway & Co. employ six miners under the personal supervision of Charles Conaway. This is a drift opening, worked on the single entry system, and has natural pressure as a means of ventilation. This method of ventilation is sufficient for the number of persons employed, as they are engaged along entries that extend through the hill. This mine penetrates the No. 6 seam of coal, which is here six feet in thickness. It was visited on November 19 and January 12, when it was found to be in good condition, and on May 24, when it was found idle, so no examination was made.

CLAYS NOS. 6 AND 7

Are located one mile west of Nelsonville on the line of the Columbus, Hocking Valley and Toledo railway. They are owned and operated by the Nelsonville Sewer Pipe Company. Sixteen miners were employed under the supervision of D. E. Dew. These mines are drift openings, advancing entries with a view of working on the long wall retreating system. Furnaces are used as a means of ventilation. The No. 7 seam of coal is penetrated, the product being used for the manufacture of paving brick at the company's factory. Visits were made on January 12, March 21 and May 25, and on each occasion I found the mine in good condition.

KLONDIKE

Is located one mile west of Nelsonville, near the factory of the Nelsonville Sewer Pipe Company. It is operated by that company. Six miners and two day men were employed under the personal supervision of D. E. Dew. This is a drift opening worked on the double entry system, and natural pressure is used as a means of ventilation. This mine penetrates the No. 6 seam of coal, which is six feet in thickness at this point. The mine was opened during the year for the purpose of supplying the company's factory with coal. When visited on March 31 the miners were working near the surface driving entries for the purpose of developing the mine. At this time the mine was in good condition. On May 25 the date of my last visit, although I found it in good sanitary condition, I advised the sinking of an air shaft and the building of a good furnace with a view of providing an artificial means for future ventilation.

MINKER RUN OR HAWKS HILL

Is located in the vicinity of Nelsonville on the line of the Columbus, Hocking Valley and Toledo railway, and is operated by the Hocking Valley Coal Company. One hundred and fifty fillers, 18 cutters and 46 day hands were employed here under the personal supervision of W. A. Woodworth. This is a drift opening worked on the double entry system, and it is ventilated by a fan. It penetrates the No. 6 seam of coal, which is six feet in thickness at this point. It is equipped with mining machines operated by compressed air and rope haulage is used for taking the coal to the tipple. When visited on January 10 I requested some improvements with a view of improving the sanitary condition at the face of the working faces. On March 18

was called to the mine for the purpose of investigating an accident, which occurred on the previous day in which Albert Smith was seriously injured by being struck by the end of the haulage rope, which had been broken by pulling a loaded train. For particulars see report of the accident filed with the Chief Inspector of Mines in his office at Columbus. On March 28 I found the approaches to the working places on several entries submerged, and I requested that operations in them cease until the water was removed. I also requested timber set in many rooms and along the roadways for the purpose of supporting the roof. On April 4 I was called in consultation by the superintendent as to the best method to comply with my previous request to secure the safety of employes from loose roof along the roadways. I advised that sufficient timber be set on the first switch and at other points. On May 23 I found my request partly complied with and the mine in fair condition.

HIAWATHA OR ORBISTON

Is located at Orbiston on the line of the Snow Fork branch of the Columbus, Hocking Valley and Toledo railway, and is operated by the Raybould Coal Company. Samuel Raybould is general manager and Wm. Raybould is mine boss. One hundred and fifty coal fillers, 18 cutters and 28 day hands were employed. This is a drift opening worked on the double entry system, and is ventilated by means of a fan. The mine penetrates the No. 6 seam of coal, which is six feet in thickness at this point. The mine is equipped with rope haulage and mining machines operated by electricity are used for cutting the coal. Four visits were made during the time covered by this report. On December 3 it was found idle, and no examination was made. On February 9 it was found in good condition. On May 27 and June 29 it was again found idle and no examinations were made.

BELL RUN NOS. 1 AND 2

Are located about three miles northeast of Nelsonville on the Monday Creek branch of the Columbus, Hocking Valley and Toledo railway, and are operated by the Maple Hill Coal Company. Twenty-three fillers, four cutters and seven day hands were employed under the personal supervision of Joshua Spencer. The mines are drift openings penetrating the east and west hills, the coal being taken over the same tippie. They are worked on the double entry system, the west side being ventilated by means of a furnace, and the east side

by a fan. The openings penetrate the No. 6 seam of coal, which is six feet in thickness at this point. Machines operated by electricity are used for mining the coal. On January 25 it was found idle and no examination was made. On March 7 it was found to be in good condition.

SPRINGFIELD NO. 2

Is located about one mile northeast of Nelsonville on the line of the Monday Creek branch of the Columbus, Hocking Valley and Toledo railway, and it is operated by the Maple Hill Coal Company. Twelve miners and two day hands were employed under the personal supervision of Richard Smith. This is a drift opening, worked on the double entry system, and is ventilated by natural pressure. It penetrates the No. 6 seam of coal, which is six feet in thickness at this point. As the coal in this territory is exhausted, the company is extracting the main entry pillars in view of an early abandonment. When visited on February 8 it was found in bad sanitary condition, and a request that a fire be built in the furnace for the purpose of removing the foul gases was made. On June 13 it was found in good condition.

NO. 3

Is located near Buchtel, on the line of the Snow Fork branch of the Columbus, Hocking Valley and Toledo railway, and it is operated by J. M. Stillwell. Twenty-three miners and seven day hands were employed under the personal supervision of Mr. Stillwell. This is a drift opening, worked on the double entry system, and natural pressure is used as a means of ventilation. This method of ventilation is sufficient, as the miners are employed near the surface openings. The No. 6 seam of coal, which is six feet in thickness at this point, is penetrated. The coal is mined by machines operated by electricity supplied from the Bell Run plant located nearby. When visited on February 8 it was found idle and no examination was made. On March 7 it was found in good condition.

WELLS

Is located near Boyle's Crossing, a station on the line of the Columbus, Hocking Valley and Toledo railway, and is operated by A. H. Wells, of Nelsonville. Sixteen miners and 10 day hands were employed under the supervision of E. H. Price. This is a drift opening, worked in a haphazard manner, and ventilated by natural means,

which is sufficient, as the workmen are employed near the surface openings. This mine penetrates the No. 6 seam of coal, which is six feet in thickness at this point. The output is hauled in road wagons about one-half mile, where it is loaded into railroad cars. When visited on April 6 it was found in good condition. On June 27 it was found idle and no examination was made.

ELM ROCK

Is located near West Floodwood, a station on the line of the Columbus, Hocking Valley and Toledo railway, and is operated by Spencer & Patton. Fifty miners and seven day hands were employed under the personal supervision of John Spencer. This is a drift opening, worked on the double entry system, and it is ventilated by means of an iron basket hung at the bottom of the air shaft. It penetrates the No. 6 seam of coal which is six feet in thickness at this point. It was visited on December 3 when it was found idle, so no examination was made. On January 13 it was found in a bad sanitary condition, due to a surface break isolating the air current from the working places. The break was ordered to be filled at once. On June 28, I again found the interior of the mine in bad sanitary condition and made some suggestions with a view of improving the ventilating system.

HALBERT

Is located at West Floodwood, a station on the line of the Columbus, Hocking Valley and Toledo railway, and is operated by the Shafer Coal Company. G. V. Shafer is superintendent, and Hezekiah Johnson is mine boss. Twenty-eight miners and six day hands are employed. This is a drift opening, worked on the double entry system, and is ventilated by means of an improved furnace placed at the bottom of the air shaft. The mine penetrates the No. 6 seam of coal which varies in thickness from four to five feet at this point. When visited on December 9, it was to investigate an accident which resulted in the death of William Powell, and seriously injuring R. E. Powell, father of the deceased. My inquiry developed that although repeatedly warned not to do so, they had stood near the face of their rooms in close proximity to the pillars separating their working place from the parallel one, in which a blast, penetrating said pillar was being put off in the opposite side. The blast shot through the pillar, the coal striking the victims. April 5 and June 27 the mine was found in good condition.

BESSIE

Is located near Glen Ebon, a station on the line of the Columbus, Hocking Valley and Toledo railway, and is operated by the Buckeye-Coal Company. C. F. Myers is superintendent, and George E. Hall is mine boss. Forty-five miners and 11 day hands were employed. It is a shaft opening, 60 feet in depth, worked on the double entry system, with fan ventilation. It penetrates the No. 6 seam of coal which varies from four to six feet in thickness at this point. The coal is mined by machines operated by compressed air. When visited on December 2, it was found idle due to a strike, and no examination was made. On December 27, I was called to this mine for the purpose of investigating an accident in which Edward Crook was mortally injured, on the 18th inst., by falling coal which he was undermining at the face of room No. 2, on the third west entry (his working place). On December 27, I was again summoned to the mine for the purpose of holding an inquest on the body of Edward Crook who died on the 25th inst. from injuries received as above stated. The inquest developed no new facts. On January 18, I was again called to this mine. This time for the purpose of investigating a complaint from the miners that the company was negligent in furnishing timber to support the roof in their working places. Upon investigation, I found the complaint well founded, whereupon I requested the management to provide the timbers at once which they promised to do. On June 15, I found the mine resuming operations after a suspension of four months due to a strike over the distribution of the working places. I found it in bad sanitary condition, for the improvement of which I offered some suggestions. I again called the attention of the management to the scarcity of timber for supporting the roof in the working places.

DALETON OR RAWNDALE

Is located at Rawndale, a station on the line of the Baltimore and Ohio Southwestern railway, and is operated by the Luhrig Coal Company. David H. Williams is superintendent and mine boss. One hundred and thirty-two coal fillers, 18 cutters, five pick miners, and 39 day hands were employed. It is a shaft opening, 130 feet deep worked on the double entry system, and is ventilated by means of a fan. It penetrates the No. 6 seam of coal which here varies from four to five and one-half feet in thickness. The coal is mined by machines operated by electricity, and an electric motor is used for

hauling the coal to the bottom of the hoisting shaft. When visited on December 21, I found a deficiency of air in the third and fourth west entries and requested some improvements made with a view of ameliorating the sanitary condition. I also found the stairway placed in the air shaft to be used as an escapement way in an emergency in an unavailable condition, owing to surface water pouring down the shaft, together with falls of slate from the sides of the shaft. I requested that the obstructions be removed and the stairway placed in an available condition. I also requested covers placed on the carriages for the purpose of protecting the cages from falling missiles at the bottom of the hoisting shaft. On March 23, I found the requests made on my previous visits complied with, excepting that applying to the stairway in the air shaft. This was ordered remedied at once.

CARBONDALE

Is located near Carbondale, a station on the line of the Mineral City branch of the Baltimore and Ohio Southwestern railway, and is operated by the Carbondale Coal Company, under the personal supervision of M. H. Doolittle. Fifty-six miners and 17 day hands were employed. This is a slope opening, worked on the double entry system and is ventilated by means of a fan. It penetrates the No. 6 seam of coal which is about four feet and six inches in thickness at this point. A steel cable is used for hauling the coal from the bottom of the slope to the tippie. When visited on April 7, the roadway on the switch at the bottom of the slope was found submerged with water and mud, due to the drains being clogged. This was ordered repaired, otherwise the mine was in good condition.

KENARD

Is located one mile southeast of Carbondale, on the line of the Mineral City branch of the Baltimore and Ohio Southwestern railway, and is operated by the Mineral City Coal Company, with Edward Canna as superintendent, and Marvin Martin, mine boss. Twenty miners, and four day hands were employed. This is a drift opening, worked in a haphazard manner with a small improvised furnace as a means of ventilation. It penetrates the No. 6 seam of coal which here is about three feet six inches in thickness. It was visited on April 7. I found the furnace inadequate for the purpose intended, and I made requests for some improvements to be made upon it.

NO. 10

Is located at Derthick, on a branch of the Toledo and Ohio Central railway, about two miles south of the village of Glouster. It is operated by the Sunday Creek Coal Company, with C. C. Sharp as superintendent and John Hopkins mine boss. Two hundred and twenty-five fillers, 18 cutters, six drillers, six pick miners and 60 day men were employed. It is a shaft opening, 110 feet in depth, worked on the double entry system, with a fan as a means of ventilation. It penetrates the No. 6 seam of coal, which is six feet in thickness at this point. Machines operated by electricity are used for mining the coal, which is hauled to the bottom of the hoisting shaft by a pair of motors operated by the same power. It was visited on November 29 for the purpose of testing two sets of scales used in weighing the miners' coal. The scales were found to be correct. When visited on January 27 I found that the angulated stairs so frequently urged to be placed in the air shaft as an available escapement way last year were not provided for, and further action would be deferred until the company could be consulted. In company with Mr. Haseltine, the Chief Inspector of Mines, I called on Mr. Stone at his office in Columbus for that purpose, who, upon hearing the cause of our visit, readily realized the importance of it. He promised to give it his immediate attention. On January 28 I was called to the mine for the purpose of investigating an accident in which Edward Wakefield was seriously injured while undermining coal in a pillar between rooms No. 51 and 52 on the fourth west entry on the north side of the mine. My inquiry developed the fact that the responsibility rested upon the victim. I was again called to the mine on February 28 for the purpose of investigating an accident in which Battisto Bartolotti was instantly killed by falling coal while undermining a standing shot. I was again called here on May 18 for the purpose of investigating an accident, which occurred on the 9th instant, seriously injuring Henry Williams. An investigation developed that the accident was caused by falling slate at the face of the sixth entry on the north side of the mine, where the roof was found to be in a very dangerous condition, due to its peculiar composition and intercepting seams. On June 1 I found the stairway placed in the air shaft as was previously requested and the mine in good condition.

KISTLER NO. 16 OF MUD FORK

Is located at Hollister, on a branch of the Toledo and Ohio Central railway, about two miles west of Glouster. It is operated by Court-

right & Kistler, with D. C. Thomas as superintendent and James Wheatley mine boss. One hundred and fifty-three fillers, 16 cutters, 16 pick miners and 54 day hands were employed. It is a shaft opening, 110 feet in depth, worked on the double entry system, with fans as a means of ventilation. It penetrated the No. 6 seam of coal, which at this point is six feet in thickness. The coal which is cut by mining machines is hauled to the bottom of the hoisting shaft by means of a motor operated by electricity. When visited on January 28 and June 6 and 7 it was found to be in good condition.

OAKDALE OR JUMBO

Is located at a station of the same name on the line of the Columbus, Shawnee and Hocking railway. It is operated by the North Star Coal Company, with L. D. Lampman as general manager and Fremont Brandon as mine boss. One hundred and six fillers, 12 cutters, 10 pick miners and 24 day hands were employed. It is a shaft opening, 90 feet in depth, worked on the double entry system, with fan ventilation. It penetrates the No. 6 seam of coal, which is six feet in thickness at this point. When visited on January 28 it was found idle, and no examination was made. On June 9, the date of my last visit, I found the fan used as a means of ventilation to be inefficient, and the interior of the mine in bad sanitary condition. Although the mine was idle, the fan was almost motionless, and air measurements were not taken. Similar sanitary conditions on previous occasions developed the inefficiency of the ventilating power to overcome the resistance caused by friction, due to the extension of the air courses. I have frequently called the attention of the management to this matter with the request to increase the ventilating facilities, but I fear no attention will be given to this much needed improvement until the mine is in a deplorable sanitary condition.

PHENIX No. 2

Is located at Glouster, on the line of the Toledo and Ohio Central railway, and is operated by W. P. Rend, with Jos. P. Rend as general manager, and Lewis Jones as mine boss. One hundred and fifteen fillers, 20 cutters, four pick miners and 48 day hands were employed. It is a shaft opening, 100 feet in depth, worked on the double entry system, with fan ventilation. Mining machines operated by electricity are used in mining the coal, which is hauled to the bottom of the hoisting shaft by a motor operated by the same power.

When visited on February 1 it was found idle, and no examination was made. On April 11 and 12 I found the interior of the third fourth west entries on each side of the mine in bad sanitary condition, due to insufficient ventilation. I made requests for several improvements, with the view of improving these conditions.

RENDS NO. 4

Is located at Jacksonville, a station on the line of the Toledo Ohio Central railway, and is operated by W. P. Rend, with Jos Rend as general manager, and D. S. Williams as mine boss. One hundred and fifty fillers, 16 cutters and 38 day hands were employed. It is a shaft opening, 110 feet in depth, worked on the double entry system, and is ventilated by means of a fan. It penetrates the No. 6 seam of coal, which is six feet in thickness at this point. Machines operated by compressed air are used in mining the coal, which is hauled to the bottom of the hoisting shaft by a rope haulage system. When visited on November 30 I found a large body of water flowing into the mine through a surface break, due to several rooms on the third east entry closing in. The pumping facilities were being worked to their full capacity to control the water. I also found conditions of the interior of the mine in bad sanitary condition, owing to a contracted distribution of the air, and I made requests for improvements, with a view of improving these conditions. On February 1 the mine was found idle, so no examination was made. On February 11 I was called to this mine in consultation, for the purpose of devising means to restrain the increasing flow of water into the mine, from the sources mentioned on my previous visit. It was decided to sink a small shaft at a convenient point and place additional power at the bottom thereof, for the purpose of pumping the water out of the mine. On June 10, the date of my last visit, I found the improvements referred to completed and the water under control. The mine is indefinitely suspended.

NO. 6, OR BRIAR RIDGE

Is located at Glouster, on the line of the Toledo and Ohio Central railway, and is operated by W. P. Rend, with Jos. P. Rend as general superintendent, and Daniel McBride as mine boss. One hundred and nine fillers, 20 cutters, 20 pick miners, and 47 day hands were employed. This is a shaft opening, 100 feet in depth, worked on the double entry system, and fans are used as a means of ventilation.

It penetrates the No. 6 seam of coal which is six feet in thickness at this point. Machines operated by compressed air are used for mining the coal. When visited on January 26, entries on the north side of the mine were being rapidly advanced to a union with entries from Phoenix No. 2, which is operated by the same company. This was being done for the purpose of concentrating these operations and facilitating the escapement way from either mine. The previous plan of connecting south entries with an old shaft has been abandoned. I was called to the mine for the purpose of investigating an accident on the 25th inst. which resulted in the death of John Hammond. The evidence developed the fact that the deceased was engaged in operating a Morgan-Gardner mining machine and in some inexplicable manner his right foot was caught by the teeth on the endless chain used for cutting the coal. The chain dragged his leg into the machine until checked by his body. His leg was so lacerated and injured before the machinery could be stopped that he died soon after. On June 2, the date of my last visit, I found the mine in bad sanitary condition, owing to insufficient ventilation. This was caused by a squeeze crossing over and closing the air course on the south side of the mine and obstructing the passage of the air current. With the view of conducting the air around this obstruction, I advised driving a narrow opening from room No. 26, off the third west entry to the second west entry, to a point west of the squeeze, thus opening an unobstructed air course and permitting the air to circulate around the mine. This the management promised to do. I also tested two sets of scales and found No. 1 O. K., but No. 2 was found to be discriminating from 100 to 1,000 pounds, and I ordered them repaired.

CRESCENT OR NO 24

Is located near Jacksonville, a station on the line of the Toledo and Ohio Central railway, and is operated by the Northern Fuel Company, with F. S. Knox as general manager, and Edward Lynch as mine boss. One hundred and sixty-five fillers, 16 cutters, 45 day hands, were employed. This is a shaft opening 100 feet deep, worked on the double entry system, and a fan is used as a means of ventilation. It penetrates the No. 6 seam of coal which is six feet in thickness at this point. Electric machines are used for cutting the coal which is hauled to the bottom of the hoisting shaft by a motor operated by the same power. When visited on December 1, many places along the first and second, third and fourth west entries were found to be in an unsafe condition, owing to loose slate overhanging the roadway.

I requested that this be taken down at once. On February 8, and June 10, the dates of my last visits, the mine was found idle and no examinations were made.

SEDALIA

Is located at Glouster, a station on the line of the Toledo and Ohio Central railway, and is operated by Wm. Palmer, who is also general manager. Sixty-four miners, and 13 day men were employed under the personal supervision of Thos. Mooney. It is a slope opening, worked on the double entry system, and is ventilated by means of a fire under the boilers placed at the bottom of an air shaft and used for generating steam for operating the pumps. The mine penetrates the No. 7 seam of coal which is about four feet in thickness at this point. A small steel cable is used for hauling the coal to the tippie. While examining the mine on February 2, an accident occurred in which Chas. Wogan was seriously injured by falling slate at the face of his working place, in a break-through from the main entry to the parallel room off the first west entry. The accident proved to be due to the rashness on the part of an overzealous miner who endeavored to recover coal before setting timber to support the roof. On May 31, the date of my last visit, the mine was found idle and no examination was made.

BLACK DIAMOND

Is located at Lathrop, a station on the line of the Sharpsburg branch of the Toledo and Ohio Central railway, and is operated by the Black Diamond Coal Company. One hundred and ten fillers, eight cutters, and 18 day men were employed under the personal supervision of George Green. It is a drift opening, worked on the double entry system, and a fan is used as a means of ventilation. It penetrates the No. 8 seam of coal which is here about eight feet in thickness, separated in the center by three feet of slate and fire clay. Mining machines operated by electricity are used for mining the coal, which is hauled to the tippie by a small motor operated by the same power. On November 30, I was called to the mine for the purpose of testing the scales used in weighing the miners' coal. These were found correct. On April 13, the date of my last visit, I found several working places in a dangerous condition, due to loose slate. I requested that timber be set at the faces for the purpose of supporting the roof.

FEDERAL NO. 1

Is located near Broadwell, a station on the line of the Toledo and Ohio Central railway, and is operated by G. W. Haybron who is general manager and mine boss. Ten miners and two day men were employed. It is a drift opening, worked on the single entry system and is ventilated by means of an improvised furnace. It penetrates the No. 8 seam of coal which varies in thickness from three to four feet at this point. When visited on April 13, it was found in bad sanitary condition, owing to neglect to keep the furnace in blast. Upon my calling the attention of the management to the matter, they proceeded to start the fire at once.

FEDERAL NO. 2

Is located at Utley, a station on the line of the Toledo and Ohio Central railway, and is the property of the Marietta Run Coal and Coke Company. Jacob Schuler is superintendent and Charles Coleman is mine boss. When in operation about 60 miners and 14 day hands are employed. It is a drift opening, worked on the double entry system, and fan ventilation is used. It penetrates the No. 8 seam of coal, which is eight feet in thickness and separated in the center by three feet of gray slate and fire clay. The mine is equipped with rope haulage, and mining machines operated by compressed air are used for cutting the coal. When visited on April 13 I found the suspension begun last year still in force and no examination was made.

BROADWELL

Is located at a station by the same name, on the line of the Toledo and Ohio Central railway, and is operated by the Broadwell Coal Company, with N. W. Musgrave as general manager, and W. H. B. Minear as mine boss. Forty miners and seven day hands were employed. This is a drift opening, worked on the double entry system, and is ventilated by means of an improvised furnace. It penetrates the No. 8 seam of coal, which is here eight feet in thickness, separated in the center by two feet of gray slate and fire clay. When visited on April 13, although idle, I examined it and found it in safe condition. However, as the request made on my previous visit to remodel the furnace for the purpose of increasing the ventilating capacity had not been complied with, I urged that the improvement be made at the company's earliest convenience.

BIG RUN

Is located at a station by that name, on the line of the Toledo and Ohio Central railway, and is owned and operated by A. E. Nice. Fifteen miners and three day hands were employed under the personal supervision of C. F. Cole. It is a slope opening, worked in a haphazard manner, and ventilated by natural means. It penetrates the No. 8 seam of coal, which is eight feet in thickness, separated in the center by three feet of gray slate and white clay. The coal is drawn to the tippie by means of a small stationary engine and wire cable. On April 13, the date of my last visit, the mine was found to be insufficiently ventilated, because of the incompleteness of the air shaft and the furnace, which I had previously requested provided. However, the work on these improvements is being proceeded with as rapidly as is convenient.

NO. 1

Is located in the village of Nelsonville, on the line of the Columbus, Hocking Valley and Toledo railway, and is operated by C. P. Evans. Ten miners and two day hands were employed under the personal supervision of Mr. Evans. It is a drift opening, worked on the double entry system, and is ventilated by means of a small furnace. It penetrates the No. 6 seam of coal, which is six feet in thickness at this point. It was formerly operated by C. L. Poston, who suspended operations in it during the year of 1895. When visited on March 29 it was found to be undergoing repairs, with a view of resuming operations under the management of Mr. Evans. On June 14, the date of my last visit, I requested that some timbers be set for the purpose of supporting the roof in room No. 8 on the fourth east entry, otherwise the mine was found in good condition.

COE HILL NO. 1

Is located near Nelsonville, on the line of the Monday Creek branch of the Columbus, Hocking Valley and Toledo railway. It is owned by Juniper & Lampman, and operated by Robinett & Gibson. Six miners are employed under the personal supervision of William Gibson. It is a drift opening, worked in a haphazard manner, and is ventilated by natural means. It penetrates the No. 6 seam of coal, which is about four feet in thickness at this point. It has been operated since 1893 by various irresponsible persons until 1896, when it was abandoned. On March 8 I found it in operation under the

most dangerous conditions, owing to loose slate overhanging the roadways, together with broken timber in the entrance to the hill. There was also an absence of ventilation. All in all it was an inexcusable death trap, as the miners were subjected to the danger of loose roof falling while on their way to and from their working places. There was no practical artificial means of ventilation provided for the purpose for rendering harmless or expelling carbonic acid gas from the mines. I therefore caused operations to cease until the mine would be put in a lawful condition.

WILLIAMS

Is located at Jacksonville, a station on the line of the Toledo and Ohio Central railway, and is operated by W. E. Williams. Five miners and two day hands were employed under the personal supervision of Mr. Williams. This is a drift opening, worked on the single entry system, and is ventilated by a small improvised furnace. It penetrates the No. 7 seam of coal, which is about three feet in thickness at this point. It is an old opening suspended several years ago, but was put in operation during the year for the purpose of furnishing the Trimble Brick Factory with coal, which is located nearby. I was called to this mine on July 13 for the purpose of investigating an accident, which occurred on the 12th instant at 9:30 P. M., in which August Binderbason lost his life. The man was pushing a loaded car from the face of No. 4 room, his working place, to the entry, when a large slab of slate fell upon him, causing his death soon after. The coroner's inquest fixed the responsibility upon the deceased.

LIST OF MINES EMPLOYING LESS THAN TEN MEN.

Name of mine.	Kind of opening.	Name of owner or operator.	No. of miners.	P. O. address.
Oak Grove.....	Drift.	Clark Wilson	1	Nelsonville
No. 63.....	"	Hall & Barber	2	"
No. 59.....	"	Irwin Coal Co.	4	"
Evans	"	C. P. Evans.....	2	"
Robins.....	"	Ed. Holland	1	"
Briar Hill.....	"	Jonas Patton	4	"

GALLIA COUNTY.

CARL NOS. 1 and 2

Are located near Chessire, a station on the line of the Columbus and Toledo railway, and are operated by E. L. Hocking. Thirty-six miners and six day men were employed under the supervision of H. V. Carl. They are drift openings, worked on double entry system, and furnaces are used as the method of ventilation. They penetrate the No. 8, or the Pomeroy seam of which is about four feet in thickness at this point. These mine opened into the same hill. No. 2 is situated in the south point the coal is hauled a distance of one-half mile in road wagons to railroad where it is loaded into cars. When visited March 2, I found several dangerous places along the roadway in the No. 1 mine; and loose slate overhanging the tracks in the entries, which I requested the management to take down, otherwise the mine was in condition.

LAWRENCE COUNTY.

NEWCASTLE

Is located at a station by the same name about three miles north of the Ohio river, at the terminus of a short railway leading from company's blast furnace, situated at Hanging Rock. It is owned by the Means, Kyle Company, with E. B. Willard as general manager and Hugh Shields as mine boss. Seventy-three miners and 14 hands were employed in mining coal, clay, and limestone, one above the other in close proximity. It is a drift opening, worked on the single entry system, and natural pressure is used as a method of ventilation. It penetrates the No. 5 seam of coal under which slopes are driven in excavating the other strata of clay and limestone which are three feet six inches, five feet and six inches in thickness respectively. The method of ventilation is sufficient, as all entries are extended through the hill and the workmen are employed on the surface. When visited on May 2, the date of my last visit was found in good condition.

PINE GROVE (LIMESTONE)

Is located near a station by the same name on the line of the Columbus and Toledo railway. It is owned and operated by Means, Kyle & Company.

N. R. McIntosh as superintendent, and E. L. Lambert as mine boss. This mine employed 14 miners and seven day hands. It is a drift opening worked on the single entry system, and is ventilated by means of an improvised furnace, located at the bottom of a small air shaft. It penetrates a seam of limestone which is about six feet in thickness at this point. When visited on April 30, it was found idle, and no examination was made.

PINE GROVE (IRON ORE) NO. 4

Is located near the limestone mine of the same name, and is owned and operated by the same company, and is under the same management. Twenty-eight miners and 14 day hands were employed. It is a drift opening, worked on the single entry system with a small improvised furnace, located at the bottom of a diminutive air shaft, serving as a means of ventilation. It penetrates a thin strata of iron ore which varies in thickness from four to 10 inches at this point, and is recovered by removing about three feet of fire clay in gaining the necessary height for the purpose of following the deposit. When visited on April 30, although the furnace was found to be useless, owing to no return air current being provided for, there was sufficient ventilation as the miners were employed near the surface on entries that exude through the hill. I also found a large force of men employed digging a much needed ditch for mine draining.

HALL

Is located near Mt. Vernon, on the line of the Cincinnati, Hamilton and Dayton railway. It is operated by the John F. Hall Coal Company, with Isaac Hall as superintendent, and Ed. Brohard as mine boss. Fifty-six miners and 11 day hands were employed. It is a drift opening, worked on the single entry system, and a furnace is used as a means of ventilation. It penetrates the limestone seam of coal which is three feet in thickness at this point. On May 3, the date of my last visit, it was found in a bad sanitary condition, owing to insufficient ventilation, together with submerged roadways, due to a squeeze isolating the furnace from the working places by closing the air courses, coupled with bad drainage. I, therefore, requested operations in coal therein to cease except for repairs, until the mine is put into a lawful condition.

FISHER COAL NO. 2

Is located near Steece, a station on the line of the Iron railway. It is operated by John L. Fisher, who is also superintendent and mine boss. Fifteen miners and four day hands were employed. It is a drift opening, worked on the single entry system, and is ventilated by means of a small furnace. It penetrates the No. 5 seam of coal, which is about three feet in thickness at this point. When visited on April 29 I found a small furnace built at the bottom of a small air shaft in compliance with my previous request, and as the mine was idle, undergoing further repairs, no examination of the interior was made.

NANCY

Is located near Steece, a station on the line of the Iron railway, and is operated by Mrs. Lindsay Kelley. Lindsay Kelley is superintendent and John Reaper is mine boss. Twelve miners and two day hands were employed. It is a drift opening, worked in a haphazard manner, with natural pressure as a means of ventilation. It penetrates the Limestone seam, which is about six feet in thickness at this point. The system of ventilating the mine is sufficient, as the workmen are employed near the surface. When visited on April 29 it was idle, and no examination was made.

E. B. WILLARD LIME AND CLAY NOS. 1 AND 2

Are located at Steece, on the line of the Iron railway. They are operated by E. B. Willard & Co., and when last in operation employed about 25 miners and five day hands. They are drift openings, separated only by a small valley, worked on the single entry system, and ventilated by natural means. They penetrate the limestone seam, which is underlaid with a valuable bed of fire clay, which is extracted after the limestone is removed. The stratas are five and six feet in thickness respectively. Although natural pressure is used as a means of ventilation, it is sufficient, as the miners are employed near the surface on entries that extend through the hill. When visited on April 29 the suspension of operations that began last year was found to be in continuance, and no examination was made.

KELLEY LIMESTONE

Is located near Center Station, on the line of the Iron railway. It is operated by Lindsay Kelley. Ten miners and two day hands were employed under the personal supervision of Peter Burke. It is a

drift opening, worked in a haphazard manner, and is ventilated by natural means. It penetrates a strata of limestone, which is six feet in thickness at this point. Although natural pressure is used as a means of ventilation, it is sufficient for the number of persons employed, as they are engaged near the surface. When visited on April 29 it was found idle, and no examination was made.

HALLEY

Is located near Aetna, a station on the line of the Iron railway, and is operated by Halley & Wells. Twenty-five miners and one day hand were employed under the personal supervision of John Justice. It is a drift opening, worked on the single entry system, and is ventilated by means of a small furnace. It penetrates the No. 5 seam of coal, which is four feet in thickness at this point. On April 28, the date of my last visit, the mine was found in good condition.

BELFONT

Is located at Vesuvius, a station on the line of the Iron railway, and is operated by the Belfont Iron Works. Thirty-eight miners and nine day hands were employed under the personal supervision of John Farmer. It is a drift opening, worked on the single entry system, and a furnace is used as a means of ventilation. It penetrates the No. 5 seam of coal, which is about three feet and four inches in thickness at this point. On April 28, the day of my last visit, it was found suspended, and no examination was made.

OLD MILL

Is located near Vesuvius, a station on the line of the Iron railway, and is operated by Pirrung & Sons, who have superseded Mulhern & Walters in its operation during the year. Twelve miners and three day hands were employed under the personal supervision of William Pirrung. It is a drift opening, worked in a haphazard manner, and is ventilated by natural means. It penetrates the No. 5 seam of coal, which is about three feet and four inches in thickness at this point. When visited on April 28 it was found idle, and no examination was made.

LAWRENCE MILL

Is located at Vesuvius on the line of the Iron railway, and is also operated by Pirrung & Sons. Fifty-five miners and seven day hands were employed under the personal supervision of John Pirrung. It

is a drift opening, worked in a haphazard manner, and is ventilated by means of a furnace. It penetrates the No. 5 seam of coal which is about three feet and four inches in thickness at this point. On April 28, the date of my last visit, it was found in bad sanitary condition, owing to insufficient ventilation, due to no fire being kept in the furnace. I requested a fire built at once.

EVERSLEY ORE NOS. 4, 5, AND 6

Are located on Ice creek, three miles east of the Hecla Blast Furnace, and are owned and operated by the Hecla Iron Co. John Theikin is superintendent and George Bowman is mine boss. Thirty-six miners and four day hands were employed. They are drift openings, worked on the single entry system. Nos. 4 and 5 are ventilated by small improvised furnaces, and No. 6 by natural pressure. They penetrate a thin strata of iron ore which varies in thickness from 8 to 12 inches at this point. The ore is procured by removing about three feet of fire clay which overlies the deposit. When visited on April 27, the workings were found in fair condition.

DEEGANS NOS. 1 AND 2

Are located at Coal Grove, a small village on the banks of the Ohio river, and are operated by Frank Deegans. Twelve miners were employed under the personal supervision of Albert Steel. They are drift openings, worked on the single entry system. No. 1 is ventilated by means of a small improvised furnace, and No. 2 which has been opened during the year is ventilated by natural pressure. They penetrate the No. 5 seam of coal which is about three feet and four inches in thickness at this point, and is covered by a strata of rock which makes an excellent roof. The output is used for domestic purposes in the vicinity. On April 27, the date of my last visit, notwithstanding the excellency of the roof, I feared too much confidence was being placed in it without the use of timber to support it, and requested posts set in the working places.

BESTER

Is located in Bone Hollow, near the city of Ironton. It is operated by Bester & Scherer. Ten miners and one day hand were employed under the personal supervision of C. W. Henry. It is a drift opening worked on the double entry system, and is ventilated by a small improvised furnace. It penetrates the No. 5 seam of coal which is

three feet and four inches in thickness at this point. The out-
used for domestic purposes in the vicinity. When visited on
26, it was found in fair condition.

LYND NO. 2, OR MURDOCK

ated near the city of Ironton, and is operated by B. F. Lynd,
s superintendent and mine boss. Fourteen miners and one day
were employed. These are three drift openings worked on the
entry system, with natural pressure as a means of ventilation.
penetrate the No. 5 seam of coal which is three feet, four inches
ickness at this point. The output is being used in the vicinity
domestic purposes. On April 26, the date of my last visit it was
in good condition.

KELLEY

ated in the city of Ironton, and is operated by the Kelley Iron
Vail Company. Conrad Klein is superintendent and mine boss.
y-five miners and five day hands were employed. It is a drift
ing, worked on the double entry system and is ventilated by
is of a small furnace. It penetrates the No. 5 seam of coal which
out three feet and three inches in thickness at this point. It is
lly found in good condition. On April 26, the date of my last
it was found suspended and no examination was made.

LIST OF MINES EMPLOYING LESS THAN TEN MEN.

me of mine.	Kind of opening.	Name of owner or operator.	No. of miners.	P. O. address.
ps, Nos. 2 & 3.	Drift.	J. W. Phillips.	2	Ironton
"	"	Thos. Anson.	1	"
"	"	Andrew Ables.	1	"
"	"	Phillip Carey.	2	Coal Grove
ian.	"	"	5	"
"	"	"	2	"
"	"	Ernest Klien.	1	Ironton
Nos. 1, 2 & 3.	"	John J. Lane.	4	"
"	"	C. L. Steed.	2	Forestdale
y, Nos. 1, 2,	"	"	"	"
"	"	James Richey.	4	Ironton
Nos. 1 & 2.	"	Thos. Miller.	2	"
Nos. 1 & 2.	"	John Blackwell.	2	"
Limestone.	"	John L. Fisher.	3	"
nce Limestone	"	Peters Iron Co.	2	Culbertson
Coal.	"	McGuin & Co.	2	Olive

MEIGS COUNTY.

CHARTER OAK

Is located at Pomeroy, and is operated by the Charter Oak Fuel Company, with J. Malone as general manager and Ed Weeks as mine boss. Sixty miners and 16 day hands were employed. It is a drift opening, worked on the double entry system, with fan ventilation. It penetrates the No. 8 seam of coal, which is about four feet in thickness at this point. Mining machines, operated by compressed air, have been introduced during the year, but owing to the tender condition of the roof they were not giving satisfaction, and it was feared that they would not be a success in this mine. When visited on November 22 and 24 I found the interior of the mine in an unsafe condition, owing to loose roof and insufficient ventilation, whereupon I requested operations to cease until these conditions were remedied. I also tested the scales used in weighing the coal, and they were found to be discriminating 20 pounds against the miner. I requested the management to have them repaired. On December 7 I visited the mine to inspect the work, which I had ordered on my previous visit. I found the mine in operation and no efforts were being made to comply with my request. I therefore immediately wired Mr. Haseltine, Chief Inspector of Mines, to meet me at the colliery at his earliest convenience, with a view of bringing legal proceedings to prevent the operation of the mine until it could be put in lawful condition. But, when in company with the Chief Inspector of Mines I appeared upon the scene the following day, the management anticipating our purpose promised to proceed with the necessary repairs at once, and the mine was allowed to continue in operation. On February 24 I again found it necessary to cause a cessation of operations in several working places until the roof was securely supported by timber. I also called the attention of the management to the loose condition of the roof along the entry. A request was made that check doors be placed on the third west entry with a view of improving the sanitary condition of the working places. On June 24, the date of my last visit, I found the mine idle, due to the dumping apparatus and tressle works erected on the bank of the Ohio river being washed away by the recent high waters, consequently no examination was made.

SYRACUSE SHAFT

Is located at a town by that name on the banks of the Ohio river. It is operated by the Syracuse Coal and Salt Company, with L. H. Bridgeman as superintendent and Thomas Mainwaring as mine boss. Seventy-five miners and 36 day hands were employed. It is a shaft opening, 60 feet deep, worked on the double entry system, and ventilated by means of a fan. It penetrates the No. 8 seam of coal, which is about four feet in thickness at this point. On November 23 I requested covers replaced on the hoisting carriages for the purpose of protecting the cages from falling missiles at the bottom of the shaft. I also ordered that some loose slate be taken down, which was found along the roadways, otherwise the mine was in good condition. On December 7 I was called to the mine for the purpose of testing the scales used in mining the coal. These were found in good condition. On March 3 I found the roof over the roadway in D. C. Miller's room off of the eighth east entry unsafe, and requested operations therein to cease until it was put in a safe condition. Some loose roof along the main entry was ordered taken down. I also requested a better system of drainage for the twelfth west entry and check doors placed on the eighth and ninth east and twelfth west entries for the purpose of turning the air current into the working places. On June 21 I found the mine just resuming operations after a local strike, extending over a period of 70 days. With the exception of a few points along the ninth east and the tenth west entries, where some loose slate was found overhanging the roadways and ordered taken down, the mine was found in fair condition.

SYRACUSE SLOPE

Is located nearby and is connected with the shaft of the same name by intercepting entries. It is owned and operated by the same company, and is under the same management. Fifteen miners and eight day hands were employed. It is a slope opening, worked in a similar manner, and ventilated with the same power and penetrating the same seam. The coal is pulled to the tibble by means of a small stationary engine and a manila cable. When visited on November 23 I requested some loose slate taken down along the roadways, otherwise the mine was found in fair condition. On December 7 I was called to the mine for the purpose of testing the scales and found them discriminating six pounds. They were ordered repaired. On June 21 the mine was found idle, and no examination was made.

MINERSVILLE


Is located at a town by the same name, on the banks of the Ohio river, and is operated by D. S. Lewis. Thirty miners and seven day hands were employed under the personal supervision of John W. Lewis. It is a drift opening, worked on the double entry system, and is ventilated by means of a small furnace. It penetrates the No. 8 seam of coal, which is about four feet in thickness at this point. When visited on February 21 and 22 it was found in fair condition. On June 22, the date of my last visit, I requested operations to cease in Arch Jones' room until it was properly ventilated, otherwise the mine was found in fair condition.

GLENDALE

Is connected with the west side of the Minersville mine which was abandoned by its previous operators and reopened during the year 1896 by the Kanawha Salt Company, for the purpose of recovering the deserted pillars, with the view of obtaining fuel for their furnace which is located nearby. Frank Chapman is superintendent and John Small is mine boss. Nineteen miners and five day men were employed. When visited on February 22, as the air current was not circulating in the working places, I requested doors placed in the jaws of several rooms. On June 22, the date of my last visit, I found the interior of the mine in a deplorable sanitary condition due to insufficient ventilation, together with imperfect drainage. I requested operations in the mines to cease until the necessary ventilation and drainage could be provided and the mine put in a lawful condition.

COAL RIDGE

Is located in the city of Pomeroy, and is operated by the Coal Ridge Salt Company. Fifteen miners and four day hands were employed under the personal management of Daniel Daniels. It is a drift opening worked on the double entry system, and natural pressure is used as a means of ventilation. It penetrates the No. 8 seam of coal which is about four feet in thickness at this point. Natural pressure furnishes sufficient ventilation, as the miners are all employed near the surface on entries that extend through the hill. When visited on February 22, and June 22, it was found in good condition.



PEACOCK

Is located at Pomeroy, and is operated by the Peacock Coal Company. Martin Ebersbach is superintendent and Wm. Ebersbach is mine boss. One hundred miners and 40 day hands were employed. This is a drift opening, worked on the double entry system, and is ventilated by a furnace. It penetrates the No. 8 seam of coal which is about four feet in thickness at this point. When visited on February 23, I requested that a check door be placed on the sixth east entry for the purpose of distributing the air through the working faces. I also requested that the loose roof overhanging the roadways be taken down. On June 24, the mine was found to be suspended, due to a strike of the day hands. No examination was made.

ROLLING MILL

Is located in the city of Pomeroy, and is operated by Martin Ebersbach, who is general manager. Twenty-one miners and five day hands were employed under the supervision of Val Ebersbach. It is a drift opening, worked on the double entry system, and a furnace is used as a means of ventilation. It penetrates the No. 8 seam of coal which is about four feet in thickness at this point. The output is used in the manufacture of merchant iron by a mill which is located nearby. When visited on February 25, and June 23, it was found in good condition.

EXCELSIOR

Is located in the city of Pomeroy, and is operated by B. Koehler. Fourteen miners and two day hands were employed under the supervision of Daniel Diehl. It is a drift opening, worked on the double entry system, and has fan ventilation. It penetrates the No. 8 seam of coal which is about four feet in thickness at this point. The output is used for fuel in boiling salt water in the production of that article at the Excelsior Salt Works, which are located nearby. When visited on February 25, the mine was found in good condition. On June 23, the date of my last visit, it was found idle and no examination was made.

SILVER RUN

Is located four miles west of Middleport, on the line of the Columbus, Hocking Valley and Toledo railway, and is operated by W. C. Russell. The number of miners employed varies from 20 to 30, and they are under the supervision of Mr. Russell. This is a drift opening, worked

on the single entry system, and is ventilated by natural means. It penetrates the No. 8 seam of coal which is about three feet and six inches in thickness. It is an old mine, formerly operated by the Silver Run Salt Company. It suspended business many years ago. The mine has been reopened during the year by Mr. Russell as a more convenient outlet for the coal in the territory and the surrounding country. Mining machines operated by compressed air are now cutting the coal and are giving satisfaction. On March 1, 1901, at the time of my last visit, it was undergoing repairs, with a view of changing the method of operation to that of the double entry system, and of natural ventilation. This is a much needed improvement.

KINGS

Is located about four miles north of Middleport, on the line of the Kanawha and Michigan railway. It is operated by Mrs. J. H. King, who is also general manager. Seventeen miners and fifty hands were employed under the supervision of William J. King. It is a drift opening, worked on the double entry system, and uses natural pressure as a means of ventilation. It penetrates the No. 8 seam of coal, which is about four feet in thickness at this point. On June 20, the date of my last visit, it was found idle, and no extension was made.

MINES EMPLOYING LESS THAN TEN MEN.

Name of mine.	Kind of opening.	Name of owner or operator.	No. of miners.	P. O.
Beach Knob.....	Drift.	James M. Roush.....	1	Pomeroy
Price.....	"	Albert Houdashell.....	2	Miner
Thomas.....	"	George Ebersbach.....	2	Pomeroy
Diamond.....	"	Thomas Bros.....	2	Middleport
Dabney.....	"	Kauff Bros.....	7	Pomeroy
Logan.....	"	Martin Ebersbach.....	6	"
Bear.....	"	Walter Edwards.....	2	Middleport

WASHINGTON COUNTY.

MINES EMPLOYING LESS THAN TEN MEN.

Name of mine.	Kind of opening.	Name of owner or operator.	No. of miners.	P. O. address.
Lyons.....	Drift.	Ross & Baker.....	5	Coal Run
Felix.....	"	Wallace & Rose.....	3	"
Henderson	"	John Henderson	3	"
Marsh Farm.....	"	Conwell & Lewis.....	5	"
Shiers.....	"	Ralph Dobbins.....	2	Lowell
Barwell.....	"	Dobbins & Smith.....	2	"

MINES VISITED IN THE FIRST DISTRICT.

BUCKEYE

Is located about two miles northwest of Nelsonville, in Hocking county. It is operated by Washington Coakley, who is superintendent and mine boss. Six miners and two day hands were employed. It is a drift opening, worked on the double entry system, and is ventilated by natural means. It penetrates the No. 6 seam of coal, which is six feet in thickness at this point. As the men are working near the surface, natural pressure furnishes sufficient ventilation. On February 4 I was ordered to examine it by the Chief Inspector of Mines for the purpose of investigating a complaint in reference to its condition, but I found no cause for grievance.

REPORT OF L. W. HULL,

Inspector of the Second District, from July 15, 1898, to November 15, 1898.

Hon. R. M. HASELTINE, Chief Inspector of Mines:

SIR: I have the honor to submit herewith my first annual report of the visits made and examinations of the mines in the Second Mining District of Ohio, from the time of my appointment, July 15, to November 15, 1898. During these months my associations with both miners and operators has been most pleasant.

Three fatalities occurred in the mines of this district during this time, two of which are credited to Athens county and one to Meigs. They are as follows: Richard Perry killed in the Minker Run mine, James Kinney killed in the Black Diamond mine in Athens county, and William Price killed in the Coal Ridge mine in Meigs county. A thorough investigation was made of each at the time it occurred, the inquiries developing in the instance of two that the responsibility of them rested upon the unfortunates, while the other was an unavoidable accident.

My time has been mostly occupied during my connection with the department in establishing a break-through system in the rooms of the mines. In this your assistance has been almost invaluable, and I desire to express my appreciation of your services. I am,

Respectfully,

L. W. HULL,
Inspector Second District.

Glouster, O., November 15, 1898.

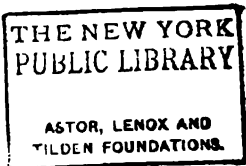
ATHENS COUNTY.

BLACK DIAMOND

Is located at Lathrop, on the Toledo and Ohio Central railway. It is owned by the Black Diamond Coal and Coke Company, and is under the supervision of George Green, Samuel Pyle being the bank boss. This is a drift opening into the No. 8 seam of coal, which is 11 feet in thickness at this point. It is separated by 36 inches of gray slate and fire clay in the center. It is worked on the double entry system, and has fan ventilation. When visited on July 19 I found the mine



L. W. HULL,
INSPECTOR SECOND DISTRICT, GLOSTER, OHIO.



idle, with the exception of a few day hands, who were making repairs. A new air shaft was completed for the purpose of increasing the volume of air throughout the mine. I found four brattices between the main and dark entries leaking badly, and I requested that they be repaired at once. I found two break-throughs open at the face of the fifth and sixth west entries, and the main air chamber was partially filled up. I requested that this be removed and the other be bratticed up. The break through system between rooms is very bad here, and I requested that a uniform break-through system be established throughout the entire mine. I was called here on the 8th of August to investigate the causes which led to the accident whereby James Kinney lost his life in room No. 2 on the fourth east entry. For details see my report to the Chief Inspector. Seventy miners and 18 day men were employed here.

BROADWELL

Is located at Broadwell, a station on the line of the Toledo and Ohio Central railway. It is owned by the Broadwell Coal Company. Thomas Musgrave is superintendent and W. H. B. Minear is mine boss. This is a drift opening into the No. 8 seam of coal, which is here 11 feet in thickness. It is worked on the double entry system, and has furnace ventilation. I found two break-throughs on the main entry without brattices and others that were in bad repair. I requested that they be closed at as early a date as possible. I found rooms on the dark entry improperly timbered and without break-throughs. I ordered these looked after at once. I visited this mine again on August 9 and found that it had changed hands. Brent Guard is superintendent and owner and W. H. B. Minear is mine boss. Fifteen miners and three day men were employed here.

BIG RUN

Is located at Big Run, a station on the line of the Toledo and Ohio Central railway. It is a slope opening having been worked without system, with natural pressure as a means of ventilation. The opening penetrates the No. 8 seam of coal which is here 11 feet in thickness. It is separated in the center by 36 inches of gray slate and soapstone. On July 20, I found the air very bad throughout the mine, and as the management promised to put in a fan, I suspended action. The mine was again visited on August 9, and a fan was found to have been erected, and for the first time in the history of the mine.

it goes on record with air measurement. This mine is owned and operated by C. A. Nice. Twenty miners and four day men were employed here.

MINKER RUN

Is located near Nelsonville, on the line of the Columbus, Hocking Valley and Toledo railway. This is a drift opening made into the No. 6 seam of coal, and it is operated by the Hocking Valley Coal Company. The mine is worked on the double entry system, and has fan ventilation. W. A. Woodworth is superintendent and N. A. Williams is mine boss. On the 28th of July, I was requested by Chief Mine Inspector, R. M. Haseltine, to go to the Hocking Valley Coal Company's mine and make a thorough examination of the top and the mode in which the mine was being conducted. I found the roof throughout the mine of a bad, treacherous nature. The top consists of about 36 inches of bastard top, over which is a layer of six inches of coal and slate mixed, and this in turn is overlaid with about 16 inches of soapstone. This combination slips, running in every direction. I found the entries conducted in a workmanlike manner. Seven by eight cross timbers are kept in place by a regular timberman which in my opinion is the only means of safety. A dangerous piece of top was found over the switch over the seventh west entry, which I requested taken down. Twelve posts were ordered set up in room 28, eight posts in room 319, and seven posts in room 23, on the eighth west entry. A brattice was found with a board off on the tenth west entry, which was ordered remedied. It was also requested that five posts be set in room 14 on the tenth west entry. The mine was again visited on September 8, when it was found idle on account of the first and second tunnels falling in closing them up. I visited it again on the 12th and 13th of October, and I found it running at its full capacity. At this time, I requested two sets of timbers placed in the seventh west entry. Work was ordered stopped in room 26 on the eighth west entry until a break-through was made and the bad top taken down at the mouth of the room. I requested that 12 posts be set in room 12 on the ninth west entry, also rooms 13 and 14 posted and a break-through made in room 17 on the ninth west entry. I requested that the bad top be taken down between rooms one and two on the twelfth west entry; and from room 25 on the tenth east entry, that the first brattice on the twelfth west entry to be repaired; that the top be shot down in break-through between 13 and 14 east entry; that a check door be hung between rooms five and six on the twelfth

east entry; that a break-through be made in room 25 on the tenth east entry; that a break-through be made in room 25 on the ninth east entry, and that four sets of old timbers be taken down in the ninth east entry and that the top be pulled down after them. The manway was found to be in a very dangerous condition owing to loose top hanging in various places. I served a written notice upon the company requesting that they have a man daily inspect the manway and pull down any and all loose top that might appear from time to time. I was again called here on November 4, to hold an inquest and investigate the accident which occurred on October 27, which resulted in the death of Richard Perry. In company with N. H. Williams, I examined the place of the accident. Perry, who was running a mining machine had evidently placed his jack in a loose piece of draw plate and the pressure that was brought to bear on it from the machine broke down upon him. A piece four feet long, about three feet wide and three inches thick on one side and very thin on the other, and in weight about 200 pounds, fell. I also investigated the accident which occurred on November 2, to Irvin Nanny. Mr. Nanny was cutting down a piece of coal in room 7 on the twelfth east entry, which had been kicked loose from a hole fired in a break-through kicking back on a face shot when it gave away, catching him between a car and inflicting painful injuries.

LUHRIG COAL COMPANY.

This mine is located at Daleton, a station on the line of the Baltimore and Ohio Southwestern railway. It is a shaft opening, 130 feet deep penetrating the No. 6 seam of coal. It varies in thickness from five feet in the west entries to six and one-quarter feet in the northeast entries. The double entry system is the method of working, with a fan as a means of ventilation. The mine is under the supervision of A. C. Cunningham, and D. H. Williams is mine boss. Upon my visits of July 28 and 29, I found the south cut off without air, whereupon I requested a break-through system established and a check door hung between the two entries. I requested that a break-through be made in room 17 on the dark east entry, in room 16 on the main east, No. 10 main east, No. 62 on the east, No. 10 on the third east, and in room 13 on the fourth east entries. I also requested that break-throughs be driven from No. 1 room on the sixth east to the main dark entry. The air throughout the mine was deficient for the want of a system of ventilation. I found small quantities of gas at

the head of the third and fourth east entries. With a proper break through system, this gas will be of little consequence. I gave the management 12 days to comply with my requests. Two hundred miners and 43 day men were employed. On August 12, I again visited this mine to look after the improvements which I had requested at the time of my former inspection. I found that my requests had been fully complied with, and the mine is now in good condition.

KISTLER OR NO. 16

Is located two miles west of Glouster, on a branch of the Toledo and Ohio Central railway. It is a shaft opening, 110 feet in depth, to the No. 6 seam of coal. It is worked on the double and tripple entry system, and uses a double fan as a means of ventilation. This mine is under the direct supervision of D. C. Thomas, with James Whealey as mine boss. One hundred and seventy miners and 44 day men were employed here. On August 5 I was called here to investigate an accident which occurred to Thomas Walters, 19 years of age. I went into the mine with four day hands, who were eye witnesses to the accident. They informed me that, although Walters was a loader and had been warned time and again to keep off the cars, he came out on the switch, the motor was making a running switch and Walters attempted to jump on the front part of the trip, but he fell underneath, narrowly escaping death. His father informed me that he had repeatedly warned his son of the danger he was continually encountering, and, while the unfortunate was to blame, this will serve to make him wiser in the future. I visited this mine again on September 16 and found it generally in good condition. I stopped rooms 25 and 27 on the fifth east entry and room 11 on the sixth east entry because they were ahead of the air. Otherwise the mine was in good condition.

FEDERAL NO. 1

Is owned and operated by G. W. Haybron. This mine works 100 miners and two day hands. I found it idle, so no examination was made.

BRIAR RIDGE OR NO. 6

Is located at Glouster. It is a shaft opening, 100 feet deep, open into the No. 6 seam of coal. It is worked on the double entry system and two fans are used as a means of ventilation. One hundred and

forty miners and 217 day hands were employed. Visits were made to this mine on August 10, August 18 and November 14. My first visit was for the purpose of testing the scales. The first three tests on the right scales and the two first tests on the car showed that they were correct, but the test on the third drop proved them discriminating 450 pounds against the company. They were repaired at once. On my visit of August 18 I found gas at the head of the fifth and sixth west entries south. I requested break-throughs made in room 30 on the fourth west entry, also that the drawing of pillars be stopped at the head of the third and fourth west entries north as a very dangerous top made it unsafe to work. I required 10 boys, who were under the lawful age, to cease working in the mine, and I informed the company that they would be expected to strictly conform to the law as amended in section 302, passed April 21, 1898. On my visit of November 14 I found that, owing to the contemplated shut down on the 1st of December, the mine had been greatly neglected. They being ahead of the air, it was necessary to stop rooms 33 and 39 west entries and room 78 on the second west entry. The air checked all over the mine, and the entire system of operation was condemned. I have given the company reasonable time to put the mine in proper condition. The mine is under the supervision of Joseph Rend. Daniel McBryde is mine boss.

PHOENIX NO. 2

Is located about one mile west of Glouster, on the Columbus, Shawnee and Hocking railway. It is a shaft opening, 112 feet in depth, penetrating the No. 6 seam of coal, which is here about six feet in thickness. The mine is ventilated by a fan. When visited I found this mine in good sanitary condition, with the exception of the following rooms, which were driven 100 to 150 feet ahead of the air. Of these I stopped rooms 66 and 67 on the first west north entry, room 8 on the sixth east entry south, room 31 on the fourth west north, south room 63 on the second west, south room 41 on the third west north. This mine is operated by W. P. Rend, and is under the supervision of Lewis Jones. John Jones is mine boss. One hundred and eighty miners and 44 day men were employed.

BESSIE.

This is a shaft opening, 60 feet in depth, made into the No. 6 seam of coal. It is located near Glen Ebon, on the line of the

Columbus, Hocking Valley and Toledo railway, and is owned by the Buckeye Coal Company. It is operated on the double entry system, and has fan ventilation. Fifty miners and 21 day men were employed. Three visits were made to this mine during the year, one each on August 12, August 26 and September 30. My first visit was for the purpose of holding an inquest over the body of Alex Powell, who was injured on the 3d of August by a fall of coal in No. 12 pillar on the fourth east entry. Upon my arrival at Glen Ebon on August 12 I learned that Mr. Powell had died the day before at 7 o'clock A. M. and that he had been buried at 3 P. M. of the same day. It was claimed that the corpse was in such a decomposed condition that it could not be held for the inquest. Later I received notice from the Chief Inspector, Mr. R. M. Haseltine, to proceed to Nelsonville and report at the coroner's office Monday, August 15, at 10 A. M., for the purpose of holding the inquest. The evidence showed that Alex Powell met his death by sheer accident. My second visit, August 26, was through the request of the mine committee for the purpose of testing a pair of platform scales. The examination proved the scales to be incorrect. I requested them to be promptly repaired. On my third visit, September 30, I found the mine considerably out of repair on the east cutoff. I requested that No. 3 room have 10 posts set, and also requested a second door to be repaired at the neck of the No. 16 room. I further requested that a check door be hung and that the bad top be taken down in the third east entry and that room 16½ be posted up. As there was no break-through system on this entry, I requested that a system be established. The main entry doors were all in bad repair, and the mine throughout is very badly timbered. I called the company's attention to these matters. I got no register of air in the mine, with the exception of on the third west entry, which registered 5,000 feet. The fan was not equal to its task, so I ordered its velocity increased.

OAK DALE

Is located one mile and a half west of Glouster, on the line of the Columbus, Shawnee and Hocking railway, and is operated by the North Star Coal Company. It is a shaft opening, 90 feet in depth to the No. 6 seam of coal. It is worked on the double entry system and has fan ventilation. One hundred miners and 37 day men were employed. This mine has recently been placed under the supervision of Hugh Mallen. Three visits were made during the year, one each on August 17, August 23, and October 27. On my first visit, I found

the mine in very bad condition, owing to the lack of distribution of the air. I requested that break-throughs be made in rooms 20 and 21 on the fourth west entry. I stopped room 15 on the fourth west entry, as it was 106 feet ahead of the air. I requested break-throughs made from rooms 12 to 29 on the third west entry. I stopped the third and fourth west entries until provided with air, also requested break-through bratticed between first and second west entry, three break-throughs closed between fifth and sixth west entries and an obstruction removed from the bottom of the air shaft. I compelled one trapper and one miner to leave the mine for burning black jack and warned them that if found guilty of second offense, I would prosecute them to the full extent of the law. My second visit was in compliance with instructions from Chief Inspector Haseltine to visit an abandoned oil well on the Somers Coal Company's land. L. D. Lampman showed me a drawing of the oil well given him by Denman & Thompson, which showed the casing to extend below the coal and two plugs in the well to extend below the coal. It might appear with all of this to have been safely sealed for the operation of the mine, were it not for the fact that gas is escaping all the time in sufficient volume to ignite and burn steadily. I have written Denman & Thompson that the well must be promptly plugged according to law. At this time there are no entries driving in the direction of the well and it is one mile from any workings of the mine. On my third visit October 27, I found that conditions had changed for the better, my instructions for break-throughs having been complied with and for the first time this mine has a system for the general distribution of the air. I stopped the first room on the nineteenth cutoff ahead of the air, otherwise the mine was in good condition.

GREENDALE COAL MINING COMPANY.

This mine is located at Murray, on the Snow Fork branch of the Columbus, Hocking Valley and Toledo railway, and is a slope opening, penetrating the No. 6 seam of coal which is here about seven feet in thickness. At the time of my visit the ventilation was deficient. In company with Chief Inspector, R. M. Haseltine, we visited the mine for the purpose of obtaining some facts that were current concerning the ventilation of the mine. We soon discovered that notwithstanding that one mile of entry had been opened up, the mine thus far had escaped the eye of inspection. It was readily seen that the means of ventilation was insufficient. Chief Haseltine ordered improvements and requested that I return at an early date and see if

his suggestions had been complied with. I afterwards visited the mine on August 22, September 7, and October 14. The mine is now in good condition. J. W. Miskell has the mine under his supervision.

no. 10

Is located two miles west of Glouster, on a branch of the Columbus, Sandusky and Hocking railway. It is a shaft opening 112 feet in depth to the No. 6 seam of coal, and the mine has fan ventilation. It is under the supervision of C. C. Sharp, and John Roberts is mine boss. Visits were made on August 20, October 28, and November 3. My first visit was made by request of the mine committee to investigate irregularities of break-throughs. Numerous break-throughs were ordered made and the bad top removed in several places. I requested the company to comply with House Bill No. 35, which regulates the employment of minors in the mines of the State of Ohio. On my return visit of October 28, I inspected the north side and found that my previous requests had been complied with. The mine gave the best air measurements in its history. My visit to the south side on November 3, developed that the mine was badly out of repair and I had to go through a general break-through overhauling throughout this side of the mine. John Roberts is mine boss, and he has now placed the new break-through system under the direct supervision of John Blower, who is an expert in the business.

CHAUNCEY & BEAUMONT COAL CO.

Is located at Chauncey, a station by that name on the line of the Kanawha & Michigan railway. It is a shaft opening, 125 feet in depth to the No. 6 seam of coal, which is here from four and one-half to six feet in thickness. It is ventilated by a fan. Fifty-four miners and 25 day hands were employed. The mine is under the supervision of Wm. Job. Ben Hill is mine boss. This mine was found to be in very bad condition for the distribution of air. I found the second north entry 125 feet ahead of the air which I stopped until the brattice was extended to the face of the entry. Notwithstanding the small territory, there has never been any system for air distribution owing to the failure to close break-throughs when they should be and not opening new ones. I have given the company 10 days to furnish the required quantity of air throughout the mine. My visit of August 25, found the mine without doors, without break-throughs, and without air. But upon my visit of September 6, I found three doors and

five brattices had been built, and the results were entirely satisfactory. On November 21, in company with Chief Inspector Haseltine, I visited the mine and found it in good condition.

NO. 24

Is located one mile south of Jacksonville. It is a shaft opening, 100 feet in depth into the No. 6 seam of coal which is six feet in thickness at this point. It is operated by the Northern Fuel Company, with Ed. Lynch as superintendent and mine boss. When visited the mine was found in good condition, with the exception of some very bad top that the fifth and sixth west entries are passing under. I requested the entries and room necks, which were very dangerous, to be timbered or stopped. The superintendent chose the latter. On November 16, I again visited the mine and it was found in good condition.

SEDALIA.

This mine is located in Gloucester, on the line of the Toledo and Ohio Central railway, and is owned and operated by William Palmer. Thomas Mooney is mine boss. Twenty-six miners and 13 day men were employed. This is a slope opening into the No. 7 seam of coal, which is five feet in thickness at this point. The mine is ventilated by a furnace. I found two open break-throughs between three and four east entries, which I requested closed. Owing to irregular break-throughs opened between rooms the air was confused throughout the mine. A general break-through system has been ordered. The mine has recently changed from a pick to an electric machine mine. On my visit of November 3 I found that my requests of August 29 had been complied with and the break-through system established. I requested that break-throughs be made in rooms Nos. 14 and 15 on the dark entry, also rooms 11 and 12. With these exceptions the mine was in good order.

EVANS NO. 1,

Formerly known as C. L. Poston's mine, is located in the eastern portion of Nelsonville, and is a drift opening into the No. 6 seam of coal, which is about six feet in thickness. Furnace pressure is used as a means of ventilation. Ten miners and two day hands were employed. I found the first two rooms isolated from the air current on account of old rooms below them being broken through to the tunnel entry. I ordered these rooms stopped. A very bad piece of top in

the main entry was found, which I requested taken down. My next visit was on November 17, when the mine was found idle, and no examination was made.

HIAWATHA.

On my first visit of September 9, I found this mine to be in general bad condition for lack of air, as there had been no system followed in its distribution. In response to a telephone message from me, the Chief Inspector came down on September 11, and together we inspected the mine. Mr. Haseltine sustained my verdict of the mine and gave some suggestions for its betterment. The mine has suspended operations until spring.

CARBONDALE NORTH

Is located at Carbondale, on the Baltimore and Ohio Southwestern railway. It is a drift opening into the No. 6 seam of coal, which is here four feet in thickness. It is operated by the Carbondale Coal Company, with M. H. Doolittle as superintendent and bank boss. Sixty-four miners and 10 day hands were employed. I requested new and larger timber placed in the main entry and 12 posts placed in each crosscut, otherwise the mine was in good condition.

HALF MOON

Is located near Buchtel, on the Snow Fork branch of the Columbus, Hocking Valley and Toledo railway. It is a drift opening, penetrating the No. 6 seam of coal, which is six feet in thickness at this point. It is ventilated by furnace pressure when in use. Twenty-five miners and seven day men were employed. J. M. Stillwell is superintendent and bank boss. I found that the furnace was not in use, whereupon I requested that it be put in operation. The machine part of the mine, seven rooms in number, is being worked in a practical manner, but the rest of the mine is pillar work. I requested pillars to be timbered at the head of the dark entry and at the head of the Stevenson entry. Bad top was ordered taken down in three places on the main entry. The sanitary conditions of the mine are good.

NO. 4

Is located within the corporate limits of Jacksonville. It is a shaft opening into the No. 6 seam of coal, which is about six feet in thickness at this point. It is operated by the Chicago Fuel Company,

under the supervision of Daniel McBryde, with William Lane as mine boss. Eighty-five miners and 22 day hands were employed. This mine has just resumed operations after a suspension of several months. I find the mine in very bad condition for lack of air. The rooms throughout the mine are void of a break-through system. With the assistance of the mine boss, Mr. Lane, we have outlined a thorough system of break-throughs. I have requested that the course of the air be changed by making an overcast into the No. 5 west entry, and at the same time bratticing up the main airway. My visit of January 5 was to look after the improvements which I had requested made. On December 12 the improvements had not yet been completed, but were progressing nicely.

LIST OF MINES EMPLOYING LESS THAN TEN MEN.

Name of mine.	Kind of opening.	Name of owner or operator.	No. of miners.	P. O. address.
Schuler	Drift	J. F. Schuler	4	Sharpsburg
Martin	"	Martin & Montgomery	3	Stewart
Carbondale No. 1	"	Carbondale Coal Co.	3	Carbondale
Carbondale No. 2	"	"	5	"
Coe Hill	"	Coe Hill Coal Co.	8	Nelsonville
Briar Hill No. 1	"	Jonas Patton	2	"
Briar Hill No. 2	"	"	3	"
Nelsonville Sewer Pipe Co.	"	Nelsonville Sewer P. Co. .	6	"
Nelsonville Sewer Pipe Co. Nos. 6 and 7 (Clay)	"	"	7	"

GALLIA COUNTY.

CARLS NO. 1

Is located at Carlton, on the Columbus, Hocking Valley and Toledo railway, and is operated by E. L. Carl, with H. V. Carl as superintendent and mine boss. It is a drift opening into the No. 8 seam of coal, which is four feet in thickness at this point. The mine is ventilated by means of a furnace. No register of air was obtained at the head of the first west south, or at the head of the first west north entry, owing to breaking into old works at the head of the first west entry. I requested this to be bratticed up. I also requested the air chambers to be kept clean. As a whole the mine was in good condition. It employed 25 miners and eight day hands.

CARLS NO. 2 •

Is a drift opening, owned and operated by E. L. Carl. Four were employed.

LAWRENCE COUNTY.

HALLEY

Is located at a small village called Aetna, eight miles north of town, on the Iron railway. It is a drift opening into the seam of coal which is about three feet and eight inches thick at this point. It is intended to be ventilated by means of pressure. I found 1,850 feet of air passing at the outlet which was coming in at the inlet. The furnace is located but a short distance from the door at the entrance of the mine. This door is out of repair, hence the furnace got its air from this door. I recommend that a new door be hung and a break-through made through the wall of room No. 3 into the air chamber. This is the first measurement of air taken at this mine. Twenty-five miners were employed at \$1.10 per day. The output of the mine is hauled by wagons one mile to the Iron railway. It is operated by and is under the supervision of David Halley, with John F. Justice as mine boss.

LAWRENCE MILL

Is operated by H. Pirrung & Son. It has been idle for some time and was not visited during the year.

EAGLE

Is operated by H. Pirrung & Son, and has been on a strike for several weeks. It employed 25 miners and three day hands. Mr. Pirrung informed me that when the mine resumed operations it was worked with but four or five men to rob the mine of its pillars. No examination was made.

BELFONT COAL.

I found this mine idle, so no examination was made.

NEW CASTLE LIME.

This mine is located about three miles north of Hanging Rock. It is a drift opening, worked on the double entry system. The break-throughs above the lime break-throughs are made down through the

A small portion of the territory is worked coal, and lime, together making the excavation about 10 feet in thickness. I requested the first east entry in the line stopped because it was ahead of the air. I also requested the break-through between Nos. 1 and 2 room on the first entry east opened, otherwise the mine was in good condition. This mine employed 47 miners and 13 day hands.

NEW CASTLE COAL

Is a drift opening, located at a town by the same name about three miles north of Hanging Rock. It is owned and operated by Means, Kyle & Company, and is worked on the single entry system. Natural pressure is used as a means of ventilation, which is sufficient, as there are a number of openings to the surface. This mine is exclusively coal, employing 47 miners and 13 day hands. It is in good condition. E. B. Willard is superintendent and Hugh Shields is mine boss.

KELLEY NAIL & IRON CO.

Is located within the corporate limits of the city of Ironton. It is a drift opening into the New Castle seam of coal which is about three feet, six inches in thickness at this point. It is worked on the double entry system with furnace pressure as a means of ventilation. I made two visits to this mine, namely, September 22, and October 21. On my first visit the mine was found idle and no examination was made. On my second visit the mine was in full operation. I requested a break-through made in room No. 2 on the main entry, also that a door be placed on the Miller entry. I stopped two men in a pillar at the head of the main entry because of black damp, otherwise the mine was in good condition. Thirty-five miners and six day hands were employed. Conrad Klien is both superintendent and mine boss.

KELLEY LIME

Is located at Bartles Station, 11 miles north of Ironton, on the Iron railway. It is a drift opening and has been worked without system and without timber. Reuben Bragdon who now has the work under his direction has begun a practical system. I stopped room No. 3 on the main entry until it could be properly timbered, and requested that timber be furnished immediately for the rest of the mine. Seventeen miners were employed.

BURK LIME NO. 1

Is located one mile north of Bartles Station, on the Iron railway. It is a drift opening into a lime rock seven feet in thickness. I find that this mine had been operated without timber and without system for air. I requested that the mine be timbered, also that room No. 1 at the head be narrowed down and driven through to room No. 8, which is driven in close from the opening. This will supply sufficient air. Eleven miners were employed under the supervision of Peter Burke, with Will Biddleburg as mine boss.

HALL

Is located about one mile north of Mt. Vernon, on the Cincinnati, Hamilton & Dayton railway. It is a drift opening with furnace pressure as a means of ventilation. It is the only mine in this section which penetrates the No. 4 seam of coal which lies directly under the lime rock. The mine has just stopped work, but I made my inspection, although a fair test could not be made. The furnace was not fired sufficiently to measure the air. I requested a brattice opposite the furnace. Also that several check doors be hung and a break-through made in Wm. Roth's room on the main entry. I also ordered some brattices repaired. Thirty miners and nine day hands were employed under the supervision of Isaac Hall. W. P. Cayer is mine boss.

MINES EMPLOYING LESS THAN TEN MEN.

Name of mine.	Kind of opening.	Name of owner or operator.	No. of miners.	P. O. address.
Deegan.....	Drift.	M. F. Deegans.....	6	Coal Grove
Carey.....	"	P. J. Carey.....	5	"
Phillips.....	"	Abbott Bros.....	2	"
Peters.....	"	John Peters.....	2	"
Ryne.....	"	Ben Ryne.....	4	"
Burke No. 2 (Lime)	"	Peter Burke.....	6	Steece

MEIGS COUNTY.

SYRACUSE SHAFT

Is located at Syracuse, and is operated by the Syracuse Coal and Salt Company. L. H. Bridgeman is superintendent and Thomas Mainwaring is mine boss. It is a shaft opening, 60 feet in depth, penetrating the No. 8 seam of coal, which is four feet in thickness at this point. It is ventilated by means of a fan. I found that the air throughout the mine was not being properly conducted on account of the doors being hung without trappers and standing open. I requested that trappers be placed at the doors. I also found that the way of egress was not available, owing to its being flooded with water. I requested that the water be pumped out and break-throughs were ordered closed between the seventh and eighth west entries, also that a brattice be placed in a break-through at the head of the eleventh east entry, otherwise conditions were fair.

SYRACUSE SLOPE

Is located one mile west of the shaft bearing the same name, and is sunk on the same territory and is operated by the same company. It is a slope opening, worked on the double entry system, and it is used as the inlet for the shaft. Ten miners and three day hands were employed. At the time of my visit the mine was idle, so that no examination was made.

GLENDALE.

This is a drift opening into the Pomeroy seam of coal, and is operated by the Kanawha Salt Company under the supervision of A. F. Chapman, with John Small as mine boss. It is ventilated by a furnace. I found the air checked on account of reckless break-through system, which I ordered remedied. I have reason to believe that this will improve conditions.

CHARTER OAK

Is a drift opening, located at Pomeroy, and is operated by the Charter Oak Fuel Company. It is worked on the double entry system, and is under the supervision of B. J. Malone, with Edward Weeks as mine boss. On the date of my visit 15 miners and nine day hands were employed cleaning up the mine, which had assigned in favor of its creditors. No examination, save of the air in the inlet and outlet, was made.

EXCELSIOR

Is a drift opening, located at Pomeroy. It is opened into the No. 1 seam of coal, which is about four feet in thickness at this point. It is worked on the double entry system, and is ventilated by means of a furnace. Benjamin Koehler is superintendent and Daniel Diehl is mine boss. With the exception of a bad piece of top on the third west entry, which I requested taken down, the mine was in good condition. Fifteen miners and three day men were employed.

ROLLING MILL NO. 2

Is a new opening into the Pomeroy seam of coal. It is worked on the double entry system, and has furnace ventilation. Sixteen miners and four day hands were employed. The mine was found to be in good condition.

PEACOCK

Is located at Pomeroy, and is owned and operated by Martin Ebersbach. It is a drift opening into the No. 8 seam of coal, which is four feet in thickness at this point. It is worked on the double entry system, and has furnace ventilation. The mine has been on a strike for the Hocking Valley day wage. Thirteen miners and three day hands were employed. The mine was found to be in good condition. Martin Ebersbach is superintendent and William Ebersbach is mine boss.

MINERSVILLE

Is located at Minersville, on the banks of the Ohio river. It is a drift opening into the No. 8 seam of coal, which is about four feet in thickness at this point. It is ventilated by means of a furnace. Thirty miners and nine day men were employed under the supervision of D. S. Lewis. John Lewis is mine boss. I requested that break-throughs be made in rooms 3, 5 and 6 on the light entry, also that a general break-through system be established on the dark entry, otherwise the mine was in good condition.

COAL RIDGE

Is located in Pomeroy, and is owned by the Coal Ridge Salt Company. It is a drift opening into the No. 8 seam of coal, and is ventilated by natural pressure. Fifteen miners and four day hands were employed under the supervision of J. W. Thomas. D. W. Daniels is mine boss. This mine was found to be in good condition.

MINES EMPLOYING LESS THAN TEN MEN.

Name of mine.	Kind of opening.	Name of owner or operator.	No. of miners.	P. O. address.
Roush	Drift.	Eli Roush	3	Minersville
Williams	"	John J. Williams	2	"
Carr Bros.	"	Wm. Carr	3	"
Dorist	"	George Bair	2	"
Venible	"	Jesse Venible	5	Pomeroy
Bentz	"	G. Bentz	2	"
Buckeye	"	Charles McQuigg	3	"
Bolling Mill No. 1	"	M. Ebersbach	6	"
Thomas	"	"	2	"
James Roush	"	James Roush	2	"
Curtis	"	Curtis & Knapp	2	"
Swamp Hollow	"	Pick Bros.	3	"
Russell	"	Russell Bros.	2	Middleport
Kings	"	Mrs. H. M. King	2	"
Noble Summit	"	N. H. Sales	2	Rutland
Hogue	"	S. D. Hogue	6	"
Stansbury	"	W. J. Lanning	4	"
Bryne	"	N. Bryne	2	"
Powers	"	L. Powers	2	"
Rupe	"	John Rupe	3	"
Silver Run	"	Wm. Russell	6	Middleport
Old Mill	"	Thomas Headly	2	"
Dabney	"	Wm. Kuaff	9	"
Logan	"	M. Ebersbach	7	Pomeroy
Nallers Run	"	"	5	"

WASHINGTON COUNTY.

MINES EMPLOYING LESS THAN TEN MEN.

Name of mine.	Kind of opening.	Name of owner or operator.	No. of miners.	P. O. address.
Lyons	Drift	Ross & Baker	4	Coal Run
Felix	"	Felix Coal Co.	3	"
Henderson	"	James Hickman	4	"

REPORT OF ROBERT H. MILLER,

Inspector of the Third District, from November 15, 1897, to Ju
15, 1898.

HON. R. M. HASELTINE, Chief Inspector of Mines:

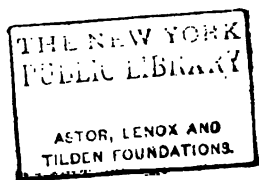
SIR: I herewith respectfully submit my seventh annual report of the mines in the counties of Perry, Muskingum, Morgan, and Noble, which embraces the Third Mining District of the State. The period covered is the first nine months of the fiscal year which ended on November 15, 1898. In these four counties I have visited 1 mines. I also inspected one mine in Athens county, making a total of 197 mines visited by me during the first nine months of the inspection year. Of these, 143 were visited once, 36 twice, 17 three times, three four times, and one five times, making an aggregate of 2 visits.

The permanent improvements made may be classified as follows: Six furnaces built, three fans erected, 12 new air shafts sunk, 10 second openings made, and seven fire baskets hung. There were 15 mines in this district which stood suspended during the year, 10 which were abandoned, and eight new mines were opened. During the year eight sets of scales were tested, seven of which were in Perry county and one in Noble county. Of these, five were found to weigh correct and two discriminating against the miners and one against the operator. One of the inaccuracies was corrected before I left the ground. I found the second one corrected one week later. The third was a set of scales at the XX mine in Perry county, and since that time that mine has been suspended.

I investigated the causes of six fatal accidents, all of which occurred in my own district. On August 5, 1897, at the Eagle mine in Muskingum county, George W. Taylor was injured by a fall of false rock, dying from the effects on November 17, 1897. On November 19, 1897, at the Hamilton No. 2 mine in Perry county, Joseph Miner Romi was killed by a fall of slate. On January 24, 1898, at the Grand mine in Muskingum county, Elmer Wilson was killed by a fall of slate. On March 12, 1898, at the Rock Run mine No. 3, in Perry county, James Abram fell down in his room from an attack of heart failure, and died in the blacksmith shop on the outside of the mine about half an hour later. On April 18, 1898, at the Ohio No. 4 mine in Perry county, Wm. B. Hughes was killed by a fall of slate.



R. H. MILLER,
INSPECTOR THIRD DISTRICT, SHAWNEE, OHIO.



On July 11, 1898, at the Rock Run mine in Perry county, David Brown, a trapper boy 13 or 14 years of age, was killed by loaded mine cars running over him.

A number of small mines in Noble county were not visited during the period covered by this report. They are domestic mines and only work certain periods of the year. I generally visit them in October. The depression in the coal industry still exists to a certain extent, to the injury of both the miner and the operator.

As this is my final report to the department, it is with pleasure that I state that my duties have been performed honorably and fearlessly, treating all concerned justly and respectfully, and I gratefully acknowledge that with one or two exceptions I have been very kindly received by both miners and operators, and I bespeak for my successor the same generous treatment and uniform courtesy.

In severing my connection with the department, I desire to express to you my heartfelt thanks for your cordial cooperation and kind advice during my official term. I am,

Respectfully,

R. H. MILLER,

Shawnee, O., July 15, 1898.

Inspector Third District.

PERRY COUNTY.

CONGO NO. 1

Is situated at Congo, on the Columbus, Shawnee and Hocking railway, and is the property of Turney, Jones & Co., of Columbus. Vinton Ferguson is superintendent and J. W. Taylor is mine boss. It is a shaft opening, 43 feet in depth, worked on the double entry system, and ventilated by a fan. It penetrates the No. 6 seam of coal, which is from 13 to 14 feet in thickness at this point. The cages are self-dumping, and the mine is equipped with a fine electric plant. The coal is cut by electric machines. When visited on February 14 there were 136 miners, 14 machine men, 47 inside and 28 outside day hands employed. I found a number of break-throughs nearly filled with bone coal and ordered that they be cleaned. I also ordered a number of new break-throughs made. On my second visit, May 26, S. W. Pascoe was superintendent and 150 miners were employed. I found a new Crawford & McCrimmin fan erected for the ventilation of the Nos. 1 and 2 mines. The fan, which was manufactured at Brazil, Ind., is 20 feet in diameter, seven feet and four

inches across the vanes, which are four feet in depth. On the day of my visit at the two outlets from the same fan I measured 156,6 cubic feet of air in one minute. They have also put in an electric motor to convey the coal from the interior of the mine to the bottom of the shaft. I found this mine in very good order.

CONGO NO 2

Is situated in close proximity to the No. 1 opening, and is owned, operated and officered by the same company. It is a shaft opening into the No. 6 seam of coal, is worked on the double entry system and is ventilated by a fan. One hundred and fifty-three miners, machine men, 46 inside and 26 outside day hands were employed. On February 18 they had erected a small fan to ventilate the mine. I ordered a number of break-throughs made, also one to be cleared out, which was nearly filled with bone coal. On May 27 I found an electric motor placed in the mine to convey the coal from the interior of the mine to the bottom of the shaft. This mine is now ventilated by a large fan located at the No. 1 shaft. I found it in very good order.

MINGO

Is situated at Hemlock, on the Columbus, Shawnee and Hocking railway, and is the property of Turney, Jones & Co. S. W. Pascoe is superintendent and C. E. Call is mine boss. It is a shaft opening 20 feet in depth, to the No. 6 seam of coal, which is here six and one-half feet in thickness. The coal is cut by electric machines. Thirty-three miners, two machine men, five inside and six outside day hands were employed. It was visited three times during the year. March 11, they were in the act of placing a dynamo and the mine was idle. It was visited again on May 23, and found idle. On June 1 the instrument would not register on the east entries, and all doors and brattices were leaking. Mr. Call has lumber on the ground and intends repairing these defects as soon as possible. They intend erecting a fan in the near future. I advised them to do so at the earliest possible moment.

XX SHIPPING

Is situated at Shawnee, on the Columbus, Shawnee and Hocking, and the Baltimore and Ohio railways, and is the property of Turney, Jones & Company, of Columbus. Vinton Ferguson is superintendent, and John Nugent is mine boss. It is a drift opening into the No. 6 seam

of coal which is 10 feet in thickness at this point. The mine is ventilated by a fan and fire basket. One hundred and fifth-two miners, 17 inside and 12 outside day hands were employed. The coal is conveyed from the interior of the mine to the hoppers by means of a tail rope. When visited on January 10, I found the air current heavily charged with black damp. I also found a door broken down at the end of the Murdock entry, 8,000 feet of air was measured returning to the fan, which was unnecessary, as that entry was abandoned. I ordered that a brattice be put up at that point. I found the return airway leading back to the fan badly obstructed by falls of slate for a distance of 250 feet. I ordered a brattice taken out inside of the obstruction, and that the air be returned on the parallel entry for that distance. When three falls of slate have been leveled and six brattices have been put up the air will have a clear back passage to the fan. When visited on May 14, the mine was found to be full of water and suspended.

RENDS NO. 3

Is situated at Rendville, on the Toledo and Ohio Central railway, and is operated by W. P. Rend & Company of Chicago, Illinois. Joseph P. Rend is superintendent and W. E. Dennis is mine boss. It is a shaft opening, 35 feet in depth, worked on the double entry system and ventilated by two fans. The No. 6 seam of coal is penetrated, which is 12 feet in thickness at this point. One hundred and sixty-five miners, 40 inside and 12 outside day hands, were employed. The coal is hauled from the interior of the mine to the bottom of the shaft by means of a tail rope. I visited this mine three times during the year. On my first visit, November 23, I found the mine in good order. On April 7 a number of doors and brattices were leaking, which I ordered repaired. When that is done the mine will be in good condition. I visited it again on June 20 and found the mine idle. In response to a telegram from Mr. Dennis I visited the mine. The company was attempting to open the fifth and sixth west entries for the purpose of getting the coal. We went south of the fourth west to the west end of those entries, then east for the length of four rooms, where we found the smoke from the fire standing across both entries like a wall. I advised that they close the break-throughs and shut the fire from the air.

NO. 8

Is located at Corning, on the Toledo and Ohio Central railway, and is the property of the Ohio Central Fuel Company. C. C. Sharp is superintendent and J. F. Roberts is mine boss. It is a shaft opening 65 feet in depth into the No. 6 seam of coal, which is here from 10 to 12 feet in thickness. It is worked on the double entry system and is ventilated by two fans. Two hundred miners, 30 inside and 20 outside day hands, were employed. The coal is hauled from the interior of the mine to the bottom of the shaft by means of a tail rope. This mine was visited twice during the year. On my visit of November 24 the ventilation was deficient at the face of the work, owing to the construction of the doors. The space was too great between the bottom of the door and the rail, besides all of the brattices were leaking. I ordered that curtains be put on the bottom of the doors and that the brattices be reclayed. I found a new stairway built in the outlet air shaft on April 8. All improvements ordered had been made and the mine was in fair condition.

NO. 21

Is situated at Carrington, on the Gloucester branch of the Toledo and Ohio Central railway, and is the property of the Ohio Central Fuel Company. It is under the same management as the No. 8 mine. It is a slope opening made into the No. 6 seam of coal, which is from six to 10 feet in thickness at this point. The mine is worked on the double entry system and is ventilated by a fan. Two hundred and fifty-five miners, 30 machine men, 32 inside and 24 outside day men were employed. The coal is hauled from the interior of the mine to the hoppers, by means of an electric motor. It is partly cut by compressed air and electric machines. It was visited four times during the year. On February 21 I found no air on the north side of the mine as it was returning to the fan through the first break-through previous to reaching the miners. I ordered that side of the mine stopped until it could be properly ventilated. On the south side I found places on the third and fourth west entries lying full of black damp. When I reached those entries they had knocked down a brattice and turned the air directly into those entries, and the black damp was traveling through the mine, together with the air current, and the rooms were full of it. Mr. Sharp wired the company that all that was wrong with the mine was that somebody had knocked down a curtain on an unused entry, while the truth of the matter

was that the mine had been idle for a number of days, and as is always the case when the fan has not been working, the mine was full of black damp. The break-throughs in this mine are made with great irregularity. I found room No. 42 on the sixth west entry driven in 120 feet without break-throughs. I stopped the entry until break-throughs were made. It was visited again on February 22, when I found two stations on the north side of the mine where one boy attended to three doors. They have nearly 100 feet to travel to open them and the same distance to shut them. I ordered a second boy put at each end of those stations. I also ordered a number of break-throughs made, besides new brattices put up and old ones repaired. I found that the black damp had been blown out of the third and fourth west entries and I allowed the miners to resume work, although it still lay in a number of working places south of those entries. I forbade them putting men at work in those places until they got the black damp out. On July 5 I found the mine idle. It was visited again on July 6 and found in fair condition.

HOBO OR SUPERIOR

Is located near New Hamburg on the Gloucester branch of the Toledo and Ohio Central railway and is operated by the Superior Coal Company. L. C. Tippet has entire supervision. It is a drift opening made into the No. 7 seam of coal, which is here $4\frac{1}{2}$ feet in thickness. It is worked on the double entry system and is ventilated by a furnace. Thirty miners, five inside and two outside day men, were employed. It was visited on March 29 and found in good order.

NO. 12 SOUTH SIDE

Is situated at New Hamburg, on the Gloucester branch of the Toledo and Ohio Central railway and is operated by the New Hamburg Coal Company. Thomas Spence is superintendent and John Clark is mine boss. It is a drift opening, made into the No. 7 seam of coal, which is here five feet in thickness. The mine is worked on the double entry system and has furnace ventilation. Thirty-eight miners, three inside and three outside day men, were employed. It was visited on April 18, when I found that it had resumed work after a long suspension. The mine was in good order.

SPRING VALLEY

Is situated in Sulphur Springs Hollow on the Gloucester branch of the Toledo and Ohio Central railway and is the property of the New Hamburg

Coal Company. Thos. Spence is superintendent and George Hodgson is mine boss. It is a slope opening made into the No. 6 seam of coal which is here seven feet in thickness. It is worked on the double entry system and is ventilated by a fire basket. Thirty-four miners, two machine men, three inside and six outside day men were employed. It was visited on March 14 and found idle. They were preparing to resume operations after a long suspension. It was again visited on June 2, when I found a dynamo placed at the mine and the coal was being cut by electric machines. I found the mine in fair condition.

NO. 20

Is located at Hemlock on the Glouster branch of the Columbus, Shawnee and Hocking railway, and is operated by J. B. Hamilton, of Columbus, who is receiver. C. G. Kern is superintendent and Pearl Barrell is mine boss. This is a slope opening into the No. 6 seam of coal which is six and one-half feet in thickness at this point. It is worked on the double entry system and is ventilated by a fan. Fifty miners, eight inside and nine outside day men were employed. The coal is hauled from the interior of the mine to the bottom of the shaft by means of a tail rope, and it is afterwards hoisted by an engine to the tippie. I visited it four times during the year. On December 15, I tested the scales and found them weighing from 25 to 50 pound light. I could not detect the error, but found some timber binding the upright rod which I ordered cut away. I promised to return the following week. I visited the mine again on December 21 and found that the timber had been cut away as ordered. I again tested the scales and found them weighing accurately. On March 11 I found the mine suspended pending an order of sale. I found on July 15 that the mine had been sold to the Hemlock Coal Company, Wm. Sturgeon having entire supervision. The mine had resumed operation, but I found it again suspended.

PEACOCK

Is situated at Hemlock on the Columbus, Shawnee and Hocking railway and is the property of Roberts & Davis. Evan Roberts has entire supervision. It is a shaft opening 20 feet in depth, made in the No. 6 seam of coal, which is here six and one-half feet in thickness. It is worked on the single entry system and is ventilated by a furnace. Sixty miners, seven inside and four outside day men were employed. It was visited on March 11 when I found the ve

ilation deficient on the north cutoff. I ordered that a break-through be made on that cutoff. I also found the doors leaking air and ordered them reclayed.. On July 5, the mine was found idle.

FURNACE NO. 2

Is located at Shawnee on the Baltimore and Ohio and the Columbus, Shawnee and Hocking railways. It is the property of Gosline & Barbour of Toledo, and is operated by E. W. Lewis of Shawnee, who has entire supervision. It is a slope opening, made into the No. 6 seam of coal, which is here five feet in thickness. It is worked on the double entry system is ventilated by a large fire basket. Eighty-eight miners, eight inside and seven outside day men were employed. The coal is conveyed from the interior of the mine to the hoppers, a distance of 2,700 feet, by means of an endless rope. It was visited five times during the year. On February 15, it was found idle. On October 15 the ventilation was deficient throughout the mine. A small air shaft was sunk on the fourth west entry. I ordered a fire basket hung in it and a door put on the east end of the fourth entry to ventilate it separately. On March 22, I found that my previous orders had been complied with and the mine was in good order. On May 12, I visited this mine again by request of the miners who said that the main entry was squeezing and that they had no means of escape if the entry should close behind them. I knew that the old works on the east side of the main entry had closed, but I expected to find an open passage through the old works on the west side of the main entry. But I failed to find it, consequently I notified Gosline & Barbour that they would be compelled to sink an air shaft inside of the squeeze and place a ladder in it as a means of escape for the miners. I told Mr. Lewis that he must impress upon the company the necessity of sinking an air shaft at once. I again notified the company by letter on June 16 that my previous order must be complied with.

SHAWNEE VALLEY

Is situated at Shawnee on the Baltimore and Ohio and the Columbus, Shawnee and Hocking railways. It is the property of the Shawnee Valley Coal and Iron Company. It is now operated by James Murrell & Co. James Murrell has entire supervision. It is a drift opening, made into the No. 6 seam of coal, which is here 10 feet in thickness. It is worked on the double entry system and is ventilated by a furnace. Eighty-four miners, 13 inside and 10 outside day

hands are employed. It has a fine system of endless rope haulag. When visited on January 17 the ventilation was deficient owing to the pump shaft being open where they were placing a dynamo. On May 10 the miners had all taken out their tools and everything on the ground was attached by the sheriff and afterwards sold.

FANNIE

Is situated at Shawnee on the Columbus, Shawnee and Hocking railway and is operated by Taylor, Williams & Jenkins. D. C. Jenkin has entire supervision. It is a drift opening, made into the No. 6 seam of coal and has natural ventilation. Twelve miners, one inside and two outside day hands were employed. This is the old Fannie mine reopened. I visited it on May 13 and found it in good order.

UPSON NO. 1

Is located at Shawnee on the Baltimore and Ohio and the Columbus, Shawnee and Hocking railways and is operated by the Upson Coal & Mining Company. Rees E. Williams has entire supervision. This is a drift opening into the No. 6 seam of coal which is here 10 feet in thickness. It is worked on the double entry system and is ventilated by a furnace. One hundred and fifteen miners, 22 inside and 16 outside day men were employed. The coal is cut by machine operated by electricity and it is hauled from the interior of the mine to the hoppers by means of an electric motor. On February 16 I found this mine in fair condition. On May 11 a number of breakthroughs were standing open on the different entries, which I ordered closed. When this is done the mine will be in good condition.

IRON POINT NO. 1

Is located near Shawnee, on the Baltimore and Ohio railway, and operated by a company of miners under the name of the Iron Point Low Vein Coal Company, Limited, of Shawnee. It is a drift opening, made into the No. 6 seam of coal, which is here five feet in thickness. It is worked on the single entry system, and is ventilated by a fire basket. Twenty-four miners, four inside and four outside day men were employed. It was visited on January 24 and found idle on account of water breaking into it. I visited it again on May 14 and found it idle. On June 22 the mine was in good condition.

XX FURNACE

Is situated at Shawnee, on the Baltimore and Ohio railway, and is operated by Taylor, Williams & Jenkins. D. C. Jenkins has entire supervision. This is a drift opening, made into the No. 6 seam of coal, which at this point is 10 feet in thickness. The work is mostly pillars and stumps. Natural ventilation is used. Twenty-four miners, one inside and two outside day hands were employed. It was visited on February 28 and June 4, and on each occasion was found in good order.

ROCK RUN NO. 3

Is located on the Rock Run branch of the Baltimore and Ohio railway, and is the property of the Columbus and Hocking Coal and Iron Company. E. B. Pedlow is superintendent and Hugh Dalrymple is mine boss. This is a drift opening into the No. 6 seam of coal, which is here from 10 to 12 feet in thickness. It is worked on the double entry system, and is ventilated by a fan. One hundred and forty-seven miners, 12 machine men, 27 inside and 35 outside day men were employed. The coal is cut by electric machines and hauled from the interior of the mine to the tippie by means of a tail rope. It was visited three times during the year. On February 17 I found it in good order. On March 19 I inspected the mine to investigate the cause of the death of James Abram, who fell down in his room on March 12 from failure of the heart. They took him outside into the blacksmith's shop, where he died half an hour later. On June 3 the mine was in very good order.

NO. 3 A

Is situated in close proximity to the No. 3 opening, and is owned, operated and officered by the same company. It is a drift opening into the No. 6 seam of coal. It is worked on the double entry system, and is ventilated by a fan. One hundred and forty-seven miners, 12 machine men and 18 inside day men were employed. The tail rope of the No. 3 opening is run into this opening on alternating trips. It was visited three times during the year. On February 17 it was found in good order, also on June 3. I visited it on July 11 to investigate the cause of the death of David Brown, a boy between 13 and 14 years of age, who was killed in this mine on Monday, July 11, while attending a door on the main south entry. He opened the door and signaled the driver to come on. When the driver reached him

he was lying across the track, three cars of the driver's trip having run over him. He was instantly killed.

NO. 69

Is located on the Rock Run branch of the Baltimore and Ohio railway, and is operated by Call, Hughes & Co. Ed Call is superintendent and Thomas McTague is mine boss. This is a drift opening into the No. 6 seam of coal, which is here 10 feet in thickness. It is worked on the double entry system, and has natural ventilation. Twelve miners and one day hand were employed. It was visited on December 2 and July 7, and on each inspection was found in good order. The shutes of this mine were burned on May 14, 1897. The company rebuilt them and operations were resumed on October 17 following.

DICKSON SOUTH SIDE

Is situated at Dickson, on the Shawnee branch of the Baltimore and Ohio railway, and is owned and operated by J. C. Hamilton, of Newark. J. M. Foreman is superintendent and H. R. Larimer is mine boss. This is a drift opening, made into the No. 6 seam of coal, which is here three feet in thickness. The entries are all driven single, and are parallel to an airway. A fire basket is used as a means of ventilation. Forty-six miners, six inside and eight outside day hands were employed. The coal is lowered to the tipple over an incline by means of a drum and wire rope. I visited this mine on December 14, when I tested the scales and found them accurate. The mine was in good condition. On April 11 it was found idle.

BRISTOL NO. 1

Is located at Bristol Junction, on the Shawnee branch of the Baltimore and Ohio railway, and is operated by the Bristol Coal Company. S. W. Butt is superintendent and G. C. Butt is mine boss. This is a drift opening, made into the No. 6 seam of coal, which is here three feet in thickness. It is worked on the double entry system, and is ventilated by a fan. Forty miners, four inside and three outside day hands were employed. The coal is hauled from the interior of the mine to the tipple by means of a tail rope. It was visited on March 15 and found idle, and on April 11 I found it in good condition.

NO. 5

Is located at New Straitsville, on the Columbus, Hocking Valley and Toledo railway, and is operated by the Troy Coal Company. James Daugherty has entire supervision. It is a drift opening, made into the No. 6 seam of coal, which is 10 feet in thickness at this point. The work here is principally drawing pillars. The mine has natural ventilation. Fourteen miners, 10 inside and one outside day hands were employed. It was visited on December 7 and on July 7 and found in good order on both inspections.

NO. 49

Is located at New Straitsville, on the Columbus, Hocking Valley and Toledo railway, and is operated by Alexander & Co. William Alexander has entire supervision. This is a drift opening, made into the No. 6 seam of coal, which is here 10 feet in thickness. It is worked on the double entry system, and has natural ventilation. Twelve miners and one day hand were employed. On December 6 I found this mine in good condition.

NO. 75

Is situated near New Straitsville, on the Columbus, Hocking Valley and Toledo railway, and is operated by Padden & Fahey Coal Company. Sam Donnely has entire supervision. This is a drift opening made into the No. 6 seam of coal which is here 10 feet in thickness. It is worked on the double entry system and has natural ventilation. Twenty-four miners, and two day hands were employed. The coal is conveyed from the mine to the tipple, a distance of 3,300 feet by means of a small locomotive. It was visited three times during the year. On December 3, I found it in good order. On June 12, the mine was found idle. It was visited again on June 8, when the ventilation was found to be deficient on the first west entry, but by driving 10 feet more they will break through the old No. 9 entry which will improve the ventilation.

NO. 37

Is situated near New Straitsville, on the Columbus, Hocking Valley and Toledo railway, and is operated by Calvin Essex, who is also superintendent. H. H. Essex is mine boss. This is a drift opening, into the No. 6 seam of coal which is here 10 feet in thickness. It is worked on the double entry system and is ventilated by a furnace.

Fifty-three miners, one inside and two outside day men were employed. When visited on December 3, the ventilation was found to be deficient. I ordered that it be improved before spring. The mine was visited again on April 9, and found in good order.

• BRIAR HILL

Is located within one mile of Deavertown station, on the Columbus Shawnee and Hocking railway, and is operated by J. G. Underwood who is also superintendent. C. A. Deaver is mine boss. This is a slope opening, made into the No. 6 seam of coal which is here three feet eight inches in thickness. It is worked on the double entry system, and is ventilated by a furnace. Eighteen miners, two inside and two outside day hands were employed. On March 1 it was found in good condition.

GREEN HOLLOW NO. 1

Is located near Redfield, on the Columbus, Shawnee and Hocking railway, and is operated by the Wallace Coal Company. Wm. Wallace is superintendent, and Ed. Moore is mine boss. This is a drift opening made into the No. 5 seam of coal which is here four feet in thickness. It is worked on the double entry system, and is ventilated by a furnace. Sixteen miners, one inside and one outside day hand were employed. It was visited on February 25, and found idle. On June 30, the mine was in good order.

CLOVER HILL

Is situated in Green Hollow, near Redfield, on the Columbus, Shawnee and Hocking railway, and is operated by the Wallace Coal Co. Wm. Wallace is superintendent, and Chas. Leasure is mine boss. This is a drift opening, into the No. 6 seam of coal which is here three feet in thickness. It is worked on the single entry system, and is ventilated by a fire basket. Twelve miners and one day hand were employed. It was visited on February 25, and June 30. The ventilation was found deficient on both occasions.

GREEN HOLLOW NO. 4

Is located in Green Hollow, near Redfield, on the Columbus, Shawnee and Hocking railway, and is operated by the Saltillo Coal Company. Wm. McMillen is superintendent, and Samuel Steel is mine boss. This is a drift opening, made into the No. 6 seam of coal which is here

three feet 10 inches in thickness. It is worked on the double entry system, and is ventilated by an open fire. Ten miners and one day man were employed. When visited on February 25, and June 30, it was found in good condition.

CHESTNUT HILL NO. 2

Is located near Redfield, on the Columbus, Shawnee and Hocking railway, and is operated by the Coyle Coal Company. James Coyle is superintendent, and G. W. Coyle is mine boss. This is a drift opening, into the No. 5 seam of coal which is here four feet in thickness. It is worked on the single entry system, and is ventilated by a fire basket. Forty-two miners, four inside and two outside day hands were employed. It was visited on February 24, when the ventilation was found deficient. I inspected it again on June 29, when the mine was found in good condition.

LYONSDALE

Is located at the tunnel, two miles west of McLuney, on the Cincinnati and Muskingum Valley railway, and is operated by Michael Meenan, who has entire supervision. It is a drift opening, into the No. 6 seam of coal which is here three and one-half feet in thickness. It is worked on the double entry system, and has furnace ventilation. Twenty-five miners, three inside and two outside day hands were employed. When visited on November 29, the mine was found in good order. I visited it again on December 31, when I tested the scales and found them correct. On April 14, it was in good condition.

BLOCK OR NO. 2

Is situated one mile west of McLuney, on the Cincinnati and Muskingum Valley railway, and is operated by Tague & Bennett. Chas. Tague is superintendent, and Lon Tague is mine boss. This is a drift opening, made into the No. 6 seam of coal which is here three and one-half feet in thickness. It is worked on the single entry system, and has furnace ventilation. Forty-eight miners, four inside and three outside day men were employed. It was visited on November 29, and April 14, and on each occasion was found in good order.

BEECH GROVE NO. 6

Is situated at McLuney, and is the property of J. H. Jones, of Zanesville. It is now operated by Beck Bros. David Beck is superintendent.

ent, and Marion Young is mine boss. It is a drift opening, into the No. 6 seam of coal which is here three and one-half feet in thickness. It is worked on the single entry system and has furnace ventilation. Fifty miners, five inside and four outside day men were employed. When visited on November 30, I found that an air shaft had been sunk. I ordered that some obstructions be cleaned out of the return air way. On April 14, the mine was in good order.

BERCH GROVE NO. 5

Is located at McLuney, on the Cincinnati and Muskingum Valley railway, and is operated and officered by the same company as is No. 6. It is a new slope opening, made into the No. 5 seam of coal, which is here four feet in thickness. The coal is pulled up the slope to the tippie by means of an engine and wire rope. On my first visit, November 30, there was but one opening. On April 14 I found that an air shaft had been sunk. I was informed that the company intended building a furnace in the near future. The mine was in good order.

ZANESVILLE NO. 2

Is situated near Crooksville on the Cincinnati and Muskingum Valley railway and is operated by the Zanesville Coal Company, of Zanesville. O. F. McKinney is superintendent and N. W. Spencer is mine boss. This is a drift opening into the No. 6 seam of coal, which is here $3\frac{1}{2}$ feet in thickness. It is worked on the double entry system and is ventilated by an open fire. One hundred and twenty miners, seven inside and six outside day hands were employed. It was visited on December 1 and April 13 and found in good order.

LOWER

Is located near Crooksville, on the Cincinnati and Muskingum Valley railway, and is operated by Tague Bros. & Co. A. P. Tague is superintendent and E. J. Tague is mine boss. It is a drift opening made into the No. 6 seam of coal, which is here $3\frac{1}{2}$ feet in thickness. It is worked on the double entry system and has furnace ventilation. Sixty miners, three inside and four outside day hands were employed. When visited on December 1 I was informed that the shutes had been burned down on November 26, 1896. They were rebuilt and the mine resumed operation on September 21, 1897. On April 13 I found that the ventilation was deficient, and I ordered that it be improved. On May 20 I tested the scales and found

them weighing accurately. The ventilation was still deficient. I ordered an air shaft sunk and a new furnace built, which the company agreed to do.

HART

Is located at Crooksville on the Cincinnati and Muskingum Valley railway and is operated by the Crooksville Coal and Sand Company. Fred Young is superintendent and W. H. Neff is mine boss. It is a drift opening made into the No. 6 seam of coal which is here three and one-half feet in thickness. It is worked on the single entry system, and has furnace ventilation. Thirty-five miners, three inside and two outside day men were employed. The coal is lowered over an incline to the tippie by means of a drum and wire rope. The mine has run very irregularly. It was visited on March 2 and found idle.

UNION.

Is situated one and one-half miles from Crooksville on the Cincinnati and Muskingum Valley railway and is operated by the Ohio Coal & Cement Company of Columbus. David Mathews is superintendent and T. C. Hilliard is mine boss. It is a drift opening made into the No. 6 seam of coal which is here three and one-half feet in thickness. It is worked on the double entry system and has furnace ventilation. Thirty miners, two inside and two outside day men were employed. When visited on March 3, the inlet was nearly closed, but they expected to have a new inlet made in a few days which would improve the condition of the mine.

NEW CRESCENT

Is located one mile from Roseville on the Cincinnati and Muskingum Valley railway and is operated by the Crescent Mining Company of Roseville. H. H. Guy is superintendent and Wm. Reed is mine boss. It is a drift opening made into the No. 6 seam of coal which is here four feet in thickness. It is worked on the double entry system and has furnace ventilation. Sixty-four miners, five inside and three outside day men were employed. When visited on March 3 the inlet was nearly closed up but they expected to have a new one made in a few days which will improve the condition of the mine.

HASLTON NO. 2

Is located one mile east of McCuneville and is the property of Henry Haselton. Joseph Miner Romine lived on the farm. He went into

the mine on Thursday, November 18, 1897, to dig coal for his own use. The mine had been idle for a number of years and there were obstructions on the entry. Mr. Romine began to take down a section off the side in order to make a new road bed. When he had gone in some distance he struck a joint and the face of the hill fell over killing him instantly. He was completely buried and two men worked for an hour before his body was recovered.

OHIO NO. 1

Is situated at Shawnee and is the property of the Ohio Mining and Manufacturing Company. W. D. Richardson is superintendent and W. E. Davis is mine boss. This is a drift opening made into the No. 6 seam of coal which is here six feet in thickness. It is worked on the single entry system and has natural ventilation. Ten miners and one day hand were employed. The coal is consumed at the brick plant. When visited on January 31 and May 28 it was found in good order.

OHIO CLAY NO. 4

Is situated at Shawnee and is the property of the Ohio Mining and Manufacturing Company. It is operated and officered by the same company as is Ohio No. 1. It is a shaft opening 80 feet in depth made into the clay under the No. 4 seam of coal which is here 10 feet in thickness. It is worked on the double entry system and is ventilated by a fan. Twelve miners, one inside and three outside day hands were employed. The clay is consumed at the brick plant. It was visited three times during the year. On January 31 I found the air shaft sunk and the company had put safety gates on the top of the hoisting shaft. I visited this mine again on April 18 to investigate the cause of the death of Wm. B. Hughes. I found that he had been working in room No. 2 on the second west entry. The room was 17 feet in width and the clay was 10 feet in height. There was a bed of black clay 15 inches in thickness that sticks to the rock. This bed hung back six feet from the face of the room and extended 14 feet across. Mr. Hughes had fired a shot in the white clay under this black bed, after which he went in to work at the face of his room when the bed of clay fell upon him, killing him instantly. The unfortunate man's head was completely mashed. On May 28 I found that the company had put an eight-foot Crawford & McCrimmon fan on the air shaft. I ordered that two doors be erected to conduct the air to the face of the entry. When that has been done the mine will be in good condition.

LIST OF MINES EMPLOYING LESS THAN TEN MEN.

Name of mine.	Kind of opening.	Name of owner or operator.	Number of miners.	P. O. address.
Haselton No. 1	Drift	Spencer & Haselton		N. Straitsville
Black Diamond No. 1	"	Black Diamond Coal Co.	3	"
" 2	"	"	2	"
No. 33	"	J. C. Faine		"
" 33A	"	"	4	"
Co-operative	"	Martin & Roan		"
No. 51	"	David Watkins	2	"
" 11	"	Cox Coal Co.	4	"
" 7	"	White & Thompson	8	"
" 77	"	Stewart Coal Co.	8	"
" 9	"	Sam Emerick	2	"
" 35	"	James O'Donnell	6	"
Howe	"	George Howe		"
No. 139	"	"	4	"
" 47A	"	Wilson & Co.	9	"
Martin	"	George Edly	2	"
Fahey	"	Fahey Coal Co.		"
No. 53	"	Ambrose Gibbs		"
" 53A	"	"	3	"
Rends No. 5	Shaft	W. P. Rend & Co.	5	Chicago, Ill.
Crooksville	Drift	Brown & Co.	3	Crooksville
Butler No. 3	"	Don Davis	4	N. Lexington
Hoops	"	Pearl Smith	1	"
Rogers No. 3	"	George Parker	6	"
Irvin	"	G. W. Irvin	1	"
Thacker	"	Caleb Blake		"
Carney	"	W. C. Carney	2	"
John Green	"	John Green		Somerset
Tom Green	"	Tom Green	2	"
Joseph Green	"	Mark Smith	1	"
Acker	"	Fred Corder	2	"
Fink	"	W. E. Fink	1	"
Yost	"	A. J. Yost	1	"
Flower	"	Lewis Flowers	2	"
C. & E.	Slope	C. A. Dean		Redfield
Davis	Drift	B. J. Davis		"
Chicago	"	Wallace Coal Co.		"
Dew	"	A. L. Hart	2	Burr Oak
Bristol No. 2	"	Bristol Coal Co.		Maholm
Engle	"	Crawford & Gaver Bros	7	McCuneville
CLAY MINES.				
Ohio No. 2	Drift	Ohio M. & M. Co.		Shawnee
" 3	"	"		"

MUSKINGUM COUNTY.

DIAMOND NO. 2

Is situated at Romine Station, on the Bellaire, Zanesville and Cincinnati railway, and is operated by C. W. Joslin, of Zanesville. N. Hauk has entire supervision. This is a drift opening, made in the No. 7 seam of coal, which is here six feet in thickness. It worked on the double entry system, and has furnace ventilation. Fifty-five miners, five inside and three outside day hands were employed. It was visited three times during the year. On January it was found in good order. On April 20 I found it idle, and June 9 it was in excellent condition.

CANNELVILLE

Is situated at Cannelville, on the Columbus, Shawnee and Hocking railway, and is operated by McNally & McDonald. John McNally superintendent and J. W. McDonald is mine boss. It is a drift opening, made into the No. 6 seam of coal, which is here four feet in thickness. It is worked on the double entry system, and is ventilated by a furnace. Fifteen miners, two inside and one outside day hands were employed. It was visited on April 21, when a number of brattices were found to be out of repair. I ordered these repaired also that more fire be kept in the furnace. I found that a new shaft had been sunk, and that the company intended building a new furnace in the near future.

BLUE ROCK

Is located at Stone's Station, on the Zanesville and Ohio railway, and is operated by the Blue Rock Coal Company. E. Souders has entire supervision. This is a slope opening, made in the No. 7 seam of coal, which is here four feet in thickness. It worked on the single entry system, and has furnace ventilation. Twenty-eight miners, two inside and one outside day men were employed. When visited on May 19 I was informed that the Muskingum river had broken into the mine, but the water had been taken out and the mine had been in operation for three weeks. It was idle when visited, and I was told that it had been for several weeks.

GRANGER

Is situated near Buckeye Station, on the Zanesville and Ohio railway and is operated by the Siler Coal Company. John Winefordner has entire supervision. This is a drift opening, made into the No. 6 seam of coal which is here three feet 10 inches in thickness. It is worked on the double entry system, and has furnace ventilation. Seventy-five miners, six inside and two outside day men were employed. The coal is lowered over an incline by means of a drum and wire rope to the tippie. On January 25, I visited this mine to investigate the cause of the death of Elmer Wilson, who was killed on January 24, by a fall of slate. The deceased, in company with Silas Dobbins worked in room No. 1 on the second west entry. The room was only eight feet in width and they were widening it out. The slate fell from pillar to pillar and was 18 inches in thickness in the center and 11 feet in length. The unfortunate man was found lying under the middle of it. His back had been broken and he was dead when found. I visited this mine again on April 1, when it was idle. On June 8, it was found in good order.

WERNER NO. 3

Is situated near the Marietta road, one mile from Zanesville. It is the property of W. A. Werner who is also superintendent. James Foutz is mine boss. This is a shaft opening, 81 feet in depth into the No. 6 seam of coal which is here three feet in thickness. It is worked on the single entry system, and is ventilated by a fan. Thirty miners, one inside and two outside day men were employed. It was visited on March 7, and April 29, and found in good condition at each inspection.

GARRETT

Is located near Sealover Station, on the Zanesville and Ohio railway, and is the property of Joseph Garrett who is also superintendent. C. E. Garrett is mine boss. This is a drift opening, made into the No. 6 seam of coal which is here three feet in thickness. It is worked on the double entry system, and has furnace ventilation. Fifteen miners, one inside and two outside day men were employed. When visited on April 1, it was found idle. I inspected it on June 6, by request of the miners who said the ventilation was deficient. I found the mine idle, but the company was making preparations to build a new furnace.

MAYNARD

Is located near Cannelville, and is operated by Maynard Bros. Columbus. James Taylor has entire supervision. It is a drift opening, made into the No. 7 seam of coal which is here four feet in thickness. It is worked on the double entry system, and has furnace ventilation. Forty miners, two inside and two outside day hands were employed. It was visited on April 21, and found idle.

CHESTNUT VALLEY NO. 1

Is located near the Marietta road, two miles from Zanesville. It is the property of Michael Fisher. M. L. Fisher is superintendent, and Wm. Ray is mine boss. It is a drift opening, made into the No. 7 seam of coal which is here three feet in thickness. It is worked on the single entry system, and has furnace ventilation. Twenty miners and 30 dogs were employed. When visited on January 11, they were sinking an air shaft. On April 29, the air shaft was finished and furnace was built. When the second west entry has been bratticed off from the Werner mine, this one will be in good order.

WELLER

Is located near South Zanesville, and is the property of W. H. Weller who is also superintendent. J. L. Young is mine boss. It is a drift opening, made into the No. 6 seam of coal which is here three feet in thickness. It is worked on the double entry system, and has natural ventilation. Seventeen miners were employed. Dogs are used in pulling out the coal which is consumed at the Weller Pottery. When visited on January 27, I found that an air shaft had been sunk. I ordered that it be made larger at the bottom. The miners requested me to visit this mine as they said the ventilation was deficient. I saw nothing to complain of except one break-through which was partly finished, and the miner had left it owing to the roof being tender. I ordered that it be made from the other side of the pillar. On June 10, the air shaft had closed and the ventilation was deficient. By driving a short distance farther they will break through into the old opening on the opposite side of the hill. I advised that they work day and night until it is through.

EAGLE

Is located near Buckeye Station, on the Cannelville branch of the Columbus, Shawnee and Hocking railway, and is operated by R.

Thompson of White Cottage who is also superintendent. Chas. O. Harris is mine boss. It is a drift opening into the No. 6 seam of coal which is here three and one-half feet in thickness. It is worked on the single entry system, and has furnace ventilation. Twenty miners, one inside and one outside day men were employed. I visited this mine on February 2, to investigate the cause of the death of George M. Taylor, who was injured on August 5, by a fall of false roof, and who died from the effects on November 17. He worked in room No. 1 on the second west entry. The room was driven in 70 feet from the entry and was 21 feet in width. There was a piece of bastard roof composed of coal and slate which hung back eight feet from the face and which was three inches in thickness. Several shots had been run up into it to cause it to fall. The deceased even tried to bar it down, but failed. He then went under it to load a car. It fell upon him and broke his back, from the effects of which his legs became paralyzed. The men in the adjoining places got him from under it and took him home. I visited this mine again on April 1, and found it idle. On June 8, it was in good order.

GREINER NO. 2

Is situated in the fifth ward of Zanesville, and is operated by H. L. Greiner who is also superintendent, and Sidney Spinks is mine boss. This is a drift opening, made into the No. 6 seam of coal which is here three feet in thickness. It is worked on the single entry system, and has natural ventilation. Ten miners were employed. It was visited on March 26, when it was found idle on account of water. On June 10, the ventilation was deficient, but the management was preparing to build a furnace.

PRINCESS

Is situated in Coal Hollow, near Sealover Station, on the Zanesville and Ohio railway, and is operated by the McCoy Coal Company, of Zanesville. John Winefordner is superintendent, and J. F. Berke-mer is mine boss. This is a drift opening, made into the No. 7 seam of coal which is here six feet in thickness. It is worked on the double entry system, and has furnace ventilation. Fifty miners, five inside and three outside day men were employed. It was visited on April 1, and found idle. On June 7, this mine was in good condition.

MINES EMPLOYING LESS THAN TEN MEN.

Name of mine.	Kind of opening.	Name of owner or operator.	Number of miners.	P. O. address.
Morgan	Drift.	John Morgan	1	Zanesville
Melvin 4 Ft.	"	Isaac Melvin	1	"
Pansler	"	J. B. Pansler	1	"
Walwork No. 2	"	George Harper	5	"
Morrison No. 2	"	I. M. Morrison	2	"
Fisher No. 1	"	C. W. Fisher	1	"
Smith No. 2	"	A. Swank	4	"
Swank	"	N. F. Swank	6	"
Moore's 3 Ft.	"	Wm. Severance	5	"
Miles No. 1	"	Joseph Miles	6	"
Miles No. 2	"	"	2	"
Sealover	"	A. German	2	"
Hoff	"	J. McNulty	7	"
Schultz	"	C. L. Schultz	3	"
German	"	A. German	5	"
Chestnut Valley No. 2	"	Wm. Dixon	5	"
Wheeler No. 1	"	W. L. Combs	6	"
Blocksom	"	G. W. Besser	1	"
Kennedy	"	J. W. Severance	4	"
Bealer	"	H. E. Willis	4	"
Oakview No. 2	"	J. H. Detenback	8	"
Henke	"	D. E. Henke	5	"
Moore's No. 1	"	J. W. Foutch	8	"
Harpers 3 Ft.	"	Eben Harper	7	"
Harpers 4 Ft.	"	"	5	"
Harper No. 3	"	"	1	"
Fisher No. 2	"	C. W. Fisher	2	"
Potts No. 1	"	Arthur Potts	1	"
Potts No. 2	"	"	2	"
Spence	"	Ed. Spence	3	"
Andrews	"	J. W. Andrews	1	"
Emery No. 1	"	Abe Emery	4	"
Emery No. 2	"	"	1	"
Miller	"	"	1	"
Ashmore	"	J. W. Greiner	2	"
Neible	"	C. J. Neible	1	"
Wallwork No. 1	"	Bridwell & Barton	6	"
Neff	"	J. R. Andrews	1	"
Yinger	"	Frank Lacey	2	"
Temple	"	Wm. Temple	2	"
Kings No. 2	"	J. E. Leddy	6	"
Bridwell	"	J. Bridwell	6	"
Spinks	"	H. Spinks	4	"
Wheeler No. 2	"	J. Purcell	3	"
Rowdock	"	Wm. Dixon	1	"
Smith No. 1	"	Wm. Uphold	3	"
Lehew	"	George M. Lehew	8	"
Moore's No. 6	"	John Lutz	2	"
Griener No. 1	"	J. R. Griener	8	"
Hildreth	"	E. E. Dunmead	3	"
Richards	"	Bridwell & Barton	3	"
Harper	"	Lewis Harper	3	"

MINES EMPLOYING LESS THAN TEN MEN—Concluded.

name of mine.	Kind of opening.	Name of owner or operator.	Number of miners.	P. O. address.
at	Drift	J. Ashcraft		Frazeysburgh
No. 3	"	J. Harper	2	"
No. 1	"	Eli Gourley		"
No. 1	"	Zed Lindell	2	"
No. 1	"	Frank Collins	2	"
No. 2	"	James Knight	3	"
No. 1	"	C. W. Bell		"
nick	"	Ewing Fletcher		Ellis
	"	J. W. McCormick	2	"
No. 4	"	L. Swagart	1	"
Dick	"	A. W. Smith	2	"
Porter	"	Frank Dick	2	Coaldale
	"	George Porter	6	"
ell	"	G. L. Starkey		"
	"	W. W. Campbell	2	Hopewell
ell	"	Isaac Sellers	1	"
	"	A. D. Morrison	7	Stovertown
	"	Monroe Waxler	2	Philo
	"	W. R. Jackson	2	Otaego
	"	W. R. Buker		"
No. 1	"	G. T. Riney	2	"
rt	"	C. P. Walker		"
on	"	T. I. Bell	1	"
id No. 1	"	J. Hamilton		"
id No. 2	"	J. S. Copeland		Dresden
	"	James Butler	4	"
	"	F. H. F. Egbert	2	"
	"	J. Jamison		"
	"	Sam Stuller		"
	"	Milton Griffin	1	"
in	"	W. J. Ruddick		"
ell	"	T. F. Billman	1	"
ls	"	McConnell & Cox	3	Dillon
Hill	"	A. W. Sloan	6	"
	"	M. W. Williamson	2	"
	"	J. C. Davis	6	"
Hill	"	J. E. Webster		"
	"	F. Heebner	2	Ellis
	"	J. L. Geyer	6	Norwich
	"	M. M. Johnson	1	"
No. 2	"	J. Johnson	2	Sundale

MORGAN COUNTY.

BLACK DIAMOND

Is situated at Deavertown Station, on the Columbus, Shawnee and Hocking railway, and is operated by the Rose Valley Coal Company. John French is superintendent and L. C. Lucas is mine boss. This is a drift opening into the No. 6 seam of coal, which is here three and one-half feet in thickness. It is worked on the double entry system and has furnace ventilation. Twenty-two miners, two inside and two outside day men were employed. When visited on March 1 I found a new furnace built and the mine was in good order.

ROSE

Is located at Deavertown Station on the Columbus, Shawnee and Hocking railway, and is operated by Carding Bros. George Carding has entire supervision. It is a drift opening into the No. 6 seam of coal, which is here $3\frac{1}{2}$ feet in thickness. It is worked on the double entry system and has furnace ventilation. Twenty-five miners, two inside and two outside day hands were employed. When visited on March 1 it was found to be in good order.

NOBLE COUNTY.

GLENWOOD

Is situated at Glenwood Station on the Cleveland and Marietta railway and is operated by J. J. Phillips of Cleveland. W. E. Davis is superintendent and E. A. Davis is mine boss. It is a shaft opening 110 feet in depth to the No. 7 seam of coal, which is five feet in thickness at this point. It is worked on the double entry system and is ventilated by a fan. Eighty miners, five inside and five outside day men were employed. It was visited three times during the year. On November 26 I tested the scales and found them weighing accurately. On March 9 I found a number of curtains and brattices leaking. I ordered the curtains replaced with doors and the brattices reelayed. I also found some loose slate in the stairway shaft, beside water falling down it. I gave them four weeks in which to brush down the loose slate and drain the water out of the shaft. On April 28 all previous orders had been complied with and the mine was in good order.

JUMBO

Is located at Jumbo trestle, one mile from Mt. Ephraim Station on the Bellaire, Zanesville and Cincinnati railway and is operated by J. W. Young, who is also superintendent. Levi Vandine is mine boss. This is a drift, opening into the Meigs Creek seam of coal, which is here $3\frac{1}{2}$ feet in thickness. It is worked on the single entry system and is ventilated by a stove. Eight miners and one day hand were employed. I visited this mine on March 8 by request of the miners who said that the ventilation was deficient. I found three rooms that were working outside of the return break-through. I ordered the entry paralleled and a break-through made between them inside of the three rooms and that the present break-through be closed.

ATHENS COUNTY.

HALBERT

Is located at West Floodwood on the Columbus, Hocking Valley and Toledo railway, and is operated by the Shafer Coal Company of Nelsonville. Hezekiah Johnson has personal supervision. This is a drift opening, made into the No. 6 seam of coal. It is worked on the double entry system, and is ventilated by a fire basket. Forty-five miners, two inside and three outside day hands were employed. On December 10, I visited this mine in response to a telegram from Mr. Haseltine, stating that Mr. Beattie, the resident inspector, was from home, and requesting me to investigate a fatal accident, whereby a boy, Wm. Powell, 18 years of age, was killed on December 8, 1897. The accident occurred by the parties in the other room shooting through the pillar. I was informed that Mr. Beattie had inspected this mine the day preceding my visit, consequently I proceeded no farther with the case.

REPORT OF DAVID B. WILSON,

Inspector of the Third District, from July 15, 1898, to November 15, 1898.

HON. R. M. HASRELTINE, Chief Inspector of Mines:

DEAR SIR: I herewith respectfully submit a report of the mines inspected by me from July 15, 1898, the date of my appointment, November 15, 1898, the end of the fiscal year. The district of which I have supervision embraces the counties of Perry, Morgan, Muskingum and Noble. In these four counties I visited 145 mines. Of them 125 were inspected once, 14 twice, 3 three times and 2 four times, making an aggregate of 170 visits. I am glad to say that the work of examining these mines has been very pleasant, as the operators were willing to make the improvements which I deemed necessary, as well as those required by law.

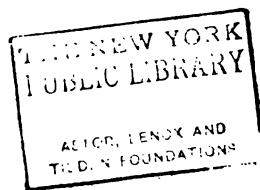
The permanent improvements made during my term of office were, one furnace built and three air shafts sunk. Two mines were abandoned and seven new ones opened. I tested four sets of scales all in Perry county, and all of which I found weighing correctly.

It is with deep regret that I report three fatal accidents which occurred during the four months that I have had charge of this district. They are as follows: On the 21st of July, at the No. 13 mine in Perry county, John Grimes was killed by a fall of slate. Thomas Morgan lost his life through a fall of coal in the Iron Point No. 1 mine in Perry county on the 5th day of September. The third casualty occurred in the Mt. Ephraim mine in Noble county on October 10, when Wm. Brand was fatally injured by a fall of slate, dying from the effects on October 30.

As a rule the business of the railroad mines in Perry and Muskingum counties has been in a depressed condition. This causes great inconvenience in making visits, it being a common occurrence to find them idle. Doors and wooden stoppings cause a great deal of trouble. I have always been in favor of brick stoppings, and more so now than ever as the price of brick is small compared with what it used to be. A brick stopping is certainly cheaper in the end, though it may cost a little more in the beginning, when once put in it is there for all time and does not require repairing and re-laying as does the wooden one. To prove that a wooden stopping is far behind the times, I cite the following example: At the inlet of a c



DAVID B. WILSON,
INSPECTOR THIRD DISTRICT, CORNING, OHIO.



tain mine the anemometer registered 24,750 feet of air per minute and at a distance of 4,000 feet in a direct line from the inlet only 11,550 feet were passing. This shows a loss of 13,200 feet of air per minute.

In submitting this, my first report, I wish to heartily thank the miners and operators of my district for their courteous and kindly treatment, and you for your valuable counsel and encouragement.

Very respectfully,

DAVID B. WILSON,
Inspector Third District.

Corning, Ohio, November 15, 1898.

PERRY COUNTY.

NO. 8

Is located at Corning on the Toledo and Ohio Central railway. It is the property of the Sunday Creek Coal Company, but is now operated by the Ohio Central Fuel Co. C. C. Sharp is superintendent and J. F. Roberts is mine boss. It is a shaft opening, 50 feet in depth, worked on the double entry system and is ventilated by two fans. It is opened into the No. 6 seam of coal, which is here from 10 to 12 feet in thickness. On my first visit, July 19, I found the air deficient at the face of the entries. I examined the doors and break-throughs and found the air leaking and going back to the outlet. They were ordered repaired at once. On July 20 these orders were being complied with and on July 29 the mine was in very good order. Two hundred and fifty miners and 50 day hands were employed here.

NO. 21

Is located at Carrington on the Glouster branch of the Toledo and Ohio Central railway. It is the property of the Sunday Creek Coal Company, but is now being operated by the Ohio Central Fuel Company. C. C. Sharp is superintendent and J. McMillen is mine boss. This is a slope opening, to the No. 6 seam of coal, which is here from six to 10 feet in thickness. It is worked on the double entry system and is ventilated by a fan. This is a machine mine, the coal being cut by electric machines. It was visited four times since my appointment. On August 1 and 2 the air was well distributed on the entries, but in a great many rooms the men were suffering for want of break-throughs. Quite a number of the rooms were driven in from 90 to 150 feet without a break-through, and in some I found large

quantities of bone coal. I asked that new break-throughs be made, and that they be kept clean in the future. On October 31 and November 4 this mine was found in very good condition. Two hundred and forty miners and 56 day men find employment here.

NO. 13, SOUTH SIDE.

This mine is situated in New Hamburg on the Glouster branch of the Toledo and Ohio Central railway. Fred Miller is superintendent and John Clark is mine boss. This is a drift opening, to the No. 7 seam of coal, which is here five feet in thickness. This mine is worked on the double entry system and has furnace ventilation. On July 22 I was called to this mine to investigate the cause of the death of John Grimes, a man 60 years of age, who was killed in the No. 3 room on the sixth east entry on the 21st of July. He was cutting in the center of his room when a piece of slate, caused by a slip in the roof, weighing 1,000 or 1,200 pounds, fell upon him, crushing his head. This was purely an accident, as his room was well timbered and in good shape. On both my visits this mine was in good order. It employed 30 miners and seven day hands.

NO. 12 OR SPRING VALLEY

Is located in Sulphur Spring Hollow, one mile from Carrington Station, on the Glouster branch of the Toledo and Ohio Central railway. It is the property of the New Hamburg Coal Company. Fred Miller is superintendent and George Hodgins is mine boss. This is a slope opening, into the No. 6 seam of coal, which is here seven feet in thickness. It is worked on the double entry system and ventilated by a fire basket. Seventy-six miners and 19 day men were employed. This is a machine mine, the coal being cut by electricity.

It was visited twice. On July 25 the air current was weak, but well distributed. They spoke of putting up a fan and I advised them to do so. On November 12 the fan had not yet been erected, but owing to the cooler weather the ventilation was good. A few rooms needed break-throughs, which I ordered made.

CONGO NO. 1

Is located at Congo Station on the Columbus, Shawnee and Hocking railway. It is operated by the Turney & Jones Company. Samuel Pascoe is superintendent and John W. Taylor is mine boss. This is a shaft opening, 35 feet in depth to the No. 6 seam of coal, which is

from 12 to 14 feet in thickness at this point. The mine is worked on the double entry system, and uses fan ventilation. The cages here are self dumping and the mine is equipped with a fine electric plant; 134 loaders, 33 pick miners, 18 machine men and 70 day hands were employed. When visited on July 21 it was found in very good condition. The managers deserve credit for the good order in which this mine is always kept, as it is a pleasure to inspect it at all times. I tested six sets of scales, and found all weighing correctly.

CONGO NO. 2.

This mine is located at Congo Station on the Columbus, Shawnee and Hocking railway and is operated by the same company as Congo No. 1. It is a shaft opening, 40 feet in depth to the No. 6 seam of coal, which is here from 12 to 14 feet in thickness. It is worked on the double entry system, and is ventilated by the same fan as No. 1. One hundred and seventy-two loaders, eight pick miners, 20 machine men and 62 day hands find employment here. When visited on July 23 I found the mine in good condition. On the main east entry in four pick rooms most of the blasting was done. A large amount of powder was consumed and when shooting at dinner time the smoke passed through the break-throughs into the rooms, which was injurious to the men. I ordered a door placed on the entry outside of the first pick room in order to send the air up to the face. This was complied with the next day and shooting can now be done at any time. I tested two sets of scales and found them both weighing correctly. Samuel Pascoe is superintendent and Thos. Stiff is mine boss.

MINGO

Is situated at Hemlock on the Columbus, Shawnee and Hocking railway. It is operated by the Turney & Jones Company, with Samuel Pascoe as superintendent and Charles E. Call as mine boss. This is a shaft opening, 30 feet in depth to the No. 6 seam of coal, which is six feet in thickness at this point. This mine is worked on the double entry system, and is ventilated by an open fire. On July 26 I found it idle, and it has remained suspended up to the present time.

REDS NO. 3

Is situated at Rendville on the Toledo and Ohio Central railway. It is operated by W. P. Rend of Chicago, Illinois, with Joseph P. Rend as superintendent and William Dennis mine boss. It is a shaft

opening, 30 feet in depth, worked on the double entry system and ventilated by a fan. The opening penetrates the No. 6 seam of coal, which is here 12 feet in thickness. One hundred and forty miners and 26 day hands were employed here. I visited this mine three times. On July 20 and August 6 I found it idle, hence no inspections were made. On August 13 I found the mine in good condition.

RENDS NO. 5

Is located at Rendville, on the Toledo and Ohio Central railway, and is under the same management as No. 3. The coal from this mine is hauled to No. 3 shaft by means of a tail rope. The double entry system of mining, and fan ventilation are used. The opening penetrates the No. 6 seam of coal which at this point is 12 feet in thickness. Sixty-six miners and 12 day hands were employed. This mine has been suspended for several years. The company went to great expense fixing up the mine for the purpose of getting top coal. They expected to get a large amount, but I am satisfied they did not get enough to pay expenses. I visited this mine four times, twice while they were repairing and twice after they had started to load coal. Things were in a deplorable condition for some time on account of the black damp. There was a strong current of air on the entries, but it did not seem to carry with it the damp. On October 6, they changed the upcast to a downcast which took the black damp out of the workings, thus leaving the mine in good condition.

NO. 3

Is located near New Straitsville, on the Baltimore and Ohio railway, and is the property of the Columbus and Hocking Coal and Iron Company. E. B. Pedlow is superintendent, and Hugh Dalrymple is mine boss. This is a drift opening, to the No. 6 seam of coal which is from 10 to 12 feet in thickness here. It is worked on the double entry system, and is ventilated by a fan. One hundred and sixty-six miners, 14 machine men, 20 inside and 17 outside day hands find employment here. The coal is cut by electric machines, and hauled from the interior of the mine by means of a tail rope. I visited the mine once and found it in excellent condition. It is one of the best conducted mines in the district, and for this the managers deserve great credit.

NO. 3 A

Is located close to No. 3 and is owned and operated by the same company, and is under the same management as that mine. This is a drift opening, into the No. 6 seam of coal which is here from 10 to 12 feet in thickness. This mine is worked on the double entry system, and is ventilated by a fan. One hundred and fifty-seven miners, 12 machine men, and 33 day men were employed. It was visited once and found in very good condition.

NO. 20

Is located at Hemlock, on the Columbus, Shawnee and Hocking railway, and is owned and operated by the Hemlock Coal Company. James Lucy is superintendent, and James Pritchard is mine boss. This is a slope opening, into the No. 6 seam of coal which is here six feet in thickness. It is worked on the double entry system, and ventilated by a fan. Thirty-five miners and nine day hands find employment here. This mine was visited twice. On September 14, they had just resumed operations after a suspension of two months. They were running a little coal and fixing up the mine. It had been the custom at this mine to drive across the face of rooms when they were a certain distance from the entry. I advised that this practice be discontinued, as it is impossible to properly ventilate a mine with the cut-off system. This the management has promised to do.

FANNIE

Is situated at Shawnee, on the Columbus, Shawnee and Hocking railway. It is operated by Taylor, Williams & Jenkins, with Daniel Jenkins as superintendent, and Edward Abram mine boss. This is a drift opening, worked on the single entry system, and has natural ventilation. The opening penetrates the No. 6 seam of coal which is here from six to nine feet in thickness. Forty miners, and four day men were employed. When visited on August 23, most of the men were engaged in drawing pillars. The mine was in good condition.

FURNACE NO. 2

Is situated at Shawnee, on the Baltimore and Ohio, and the Columbus, Sandusky and Hocking railway, and it is the property of Gosline & Barbour of Toledo. It is operated by E. W. Lewis & Company of Shawnee. E. W. Lewis is superintendent and mine boss. This is a drift opening, worked on the double entry system, and it is ventilated by

a fire basket and exhaust steam from a pump. The opening penetrates the No. 6 seam of coal which at this point is six feet in thickness. Twenty-five miners and four day hands were employed. When visited on August 23, there was a deficiency of air on west entry where all the men were working. The air was passing out of another entry and not going to the working places. I ordered that a door be put on the entry and that two break-throughs in an old room be filled up which would send the air down to the men. The management said that my orders would be complied with at once.

IRON POINT NO. 1

Is located at Shawnee, on the Baltimore and Ohio railway, and it is operated by the Iron Point Low Vein Coal Company. D. S. Richards has entire supervision. This is a drift opening, worked on the double entry system, and ventilated by a fire basket. The opening penetrates the No. 6 seam of coal which is five feet in thickness at this point. Twenty-three miners and six day men were employed. On September 6, I was called to this mine to investigate the cause of the death of Thomas Morgan. The day before he and his father were working on an entry pillar and accidentally cut into an old powder break. This caused the coal to fall crushing his back. He died about two hours later. On this occasion, I found the mine in good condition.

UPSON NO. 1

Is located at Shawnee, on the Baltimore and Ohio, and the Columbus Shawnee and Hocking railways, and it is operated by the Upson Coal and Mining Company. Rees E. Williams has entire supervision. This is a drift opening, worked on the double entry system, and is ventilated by a furnace. It is opened into the No. 6 seam of coal which is here 10 feet in thickness. Sixty-six loaders, 30 pick miners, six machine runners, 20 inside and 15 outside day men find employment here. In this mine the coal is cut by electric machines and is hauled by a motor from the interior of the mine to the tippie. When visited on November 13, I found this mine in very good order.

XX

Is situated at Shawnee, on the Columbus, Shawnee and Hocking, and the Baltimore and Ohio railways, and is operated by Taylor, Williams and Co. of Shawnee. Daniel Jenkins is superintendent, and Richard Williams is mine boss. This is a drift opening and has natural ven-

tilation. This mine has been suspended for several months, but when visited on September 9, they were repairing it with a view of resuming operations.

BRISTOL NO. 1

Is situated at Bristol Junction, on the Shawnee branch of the Baltimore and Ohio railway, and is operated by the Bristol Coal Company. S. W. Butt is superintendent, and G. C. Butt is mine boss. This is a drift opening, worked on the double entry system and ventilated by a fan. The opening penetrates the No. 6 seam of coal which is here three feet in thickness. Fifty miners and nine day men were employed. When visited on September 12, this mine was found in good condition.

DICKSON

Is located at Dickson, on the Baltimore and Ohio railway. J. M. Foreman is superintendent and H. R. Larimer is mine boss. This is a drift opening, worked on the single entry system, and is ventilated by a fire basket. The opening penetrates the No. 6 seam of coal, which is here three feet in thickness. When visited on September 12 I found the mine idle, hence no examination was made.

BLOCK NORTH SIDE

Is located one mile west of McLuney, on the Cincinnati and Muskingum Valley railway, and is operated by Tague & Bennet. Charles Tague is superintendent and Lon Tague is mine boss. This is a drift opening, worked on the double entry system, and has furnace ventilation. It is opened into the No. 6 seam of coal, which is three feet in thickness at this point. Thirty miners and seven day hands were employed here. When inspected on August 31 this mine was found to be in very good condition.

LYONSDALE

Is located at the tunnel, two miles west of McLuney, on the Cincinnati and Muskingum Valley railway. It is operated by M. Meenan, who is also manager. J. J. Meenan is bank boss. This is a drift opening, worked on the double entry system, and furnace ventilation is used. It is opened into the No. 6 seam of coal, which at this point is three feet and six inches in thickness. Fifteen miners and two day hands were employed. When visited on August 31 they were drawing pillars with the intention of abandoning the mine and opening a new one on the same property. This they have since done.

HORN

Is located near Crooksville, on the Cincinnati and Muskingum Valley railway, and is operated by Tague Bros. E. P. Tague is superintendent and E. J. Tague is mine boss. This is a drift opening worked on the double entry system, and is ventilated by an opening. The opening penetrates the No. 6 seam of coal, which is here three feet and six inches in thickness. Sixty miners and eight day hands were employed. It was visited twice. On August 3 they were putting down a new air shaft. As the air was very weak at working faces, I ordered that two stoppings be reelayed, and that the air shaft be completed as soon as possible. This they agreed to do, and on October 20 I found all orders complied with and mine in good condition.

KEYSTONE

Is situated near Crooksville, on the Cincinnati and Muskingum Valley railway, and it is the property of the Zanesville Coal Company. O. F. McKinney is manager and N. W. Spencer is mine boss. This is a drift opening, worked on the double entry system, and furnace ventilation is used. This opening is into the No. 6 seam of coal, which is three feet and six inches in thickness at this point. One hundred and five miners and 12 day hands were employed. When visited on August 3 I found two break-throughs open on the third west entry and one leaking air. I ordered one stopping to be put up and the other to be reelayed. On October 20 I found that previous orders had been complied with, but I found several stoppings leaking on south entries. These I ordered reelayed, and the mine boss agreed to give them his early attention.

UNION NORTH SIDE

Is located one and one-half miles east of Roseville, on the Cincinnati and Muskingum Valley railway, and is operated by the Ohio Cement Company. David Mathews is superintendent and Charles Conn is bank boss. This is a drift opening; worked on the double entry system, and ventilated by a furnace. It is opened into the No. 6 seam of coal, which is here three feet and six inches in thickness. Twelve miners and two day men were employed. It was visited on August 4 and found in good order.

BEECH GROVE NO. 6

Is located at McLuney, on the Cincinnati and Muskingum Valley railway, and is operated by Beck Bros. David Beck is superintendent and F. M. Young is mine boss. This is a drift opening, worked on the single entry system, and ventilated by a furnace. It is an opening to the No. 6 seam of coal, which is three feet and six inches in thickness at this point. Twenty-six miners and six day hands were employed. When visited on August 31 I found this mine in good condition.

NEW CRESCENT

Is situated near Roseville, on the Cincinnati and Muskingum Valley railway. It is operated by the New Crescent Mining Company, with H. H. Guy as superintendent and William Reed mine boss. This is a drift opening to the No. 6 seam of coal, which at this point is three feet and six inches in thickness. It is worked on the double entry system and ventilated by a furnace. Forty miners and six day men were employed. When visited on August 4 and September 19 it was found idle.

CLOVER HILL NO. 2

Is located near Redfield, on the Columbus, Shawnee and Hocking railway, and is operated by the Wallace Coal Company. William Wallace is superintendent and Charles Leasure is bank boss. This is a drift mine, worked on the single entry system, and ventilated by an open fire. The opening penetrates the No. 6 seam of coal, which is here three feet in thickness. Ten miners and two day hands were employed. I visited this mine twice and on both occasions found it in fair condition.

GREEN HOLLOW NO. 1

Is located in Green Hollow, near Redfield, on the Columbus, Shawnee and Hocking railway, and is operated by the Wallace Coal Company. William Wallace is superintendent and Edward Moore is mine boss. This is a drift opening, worked on the double entry system, and is ventilated by a furnace. It is opened into the No. 5 seam of coal, which at this point is four feet in thickness. Twenty miners and two day hands were employed. It was visited twice and on both occasions was in fair condition.

SUPERIOR

Is located one mile from New Hamburg, on the Columbus, Shawnee and Hocking railway. L. C. Tippet is manager and Samuel Tippet is mine boss. This is a drift opening, worked on the double entry system, and is ventilated by a furnace. It is opened into the No. 7 seam of coal, which at this point is four feet and six inches in thickness. Twenty-five miners and four day men were employed. When visited on July 28 this mine was in fair condition. They were preparing to put in an electric machine plant, which has since been put into operation.

CHESTNUT RIDGE

Is located near Redfield, on the Columbus, Shawnee and Hocking railway and is operated by A. P. Simons who has entire supervision. It is a drift opening, worked on the single entry system, and has natural ventilation. It is opened into the No. 5 seam of coal which is here four feet in thickness. When visited on August 10, I found the ventilation poor and the roads very wet and muddy. Mr. Simons said he intended placing the mine in better condition. On October 3, I found the mine idle and no one around. I was informed that they were putting down a new air shaft which has since been finished. The mine is now in better order.

CHESTNUT HILL NO. 2

Is situated near Redfield, on the Columbus, Shawnee and Hocking railway, and is operated by the Coyle Coal Company. George Coyle is superintendent, and Frank Coyle is mine boss. This is a drift opening, worked on the double entry system, and is ventilated by an open fire. It is opened into the No. 5 seam of coal which is here from three to four feet in thickness. Forty miners and six day men were employed. When visited on August 10, I found the air weak at the face of the workings owing to the inlet shaft being nearly filled up with mud washed into it by the heavy rains. I ordered that it be cleaned out and on October 3, I found the mine in very good order. On November 4, I investigated the cause of an explosion which occurred by an overcharge of powder in a cutting shot in the main entry which caused the fine dust to explode. This is not a gaseous mine.

NO. 37 NORTHWEST

uated near New Straitsville, on the Columbus, Hocking Valley Toledo railway, and is operated by the Essex Coal Company. C. is superintendent and H. H. Essex is mine boss. This is a opening, worked on the single entry system, and ventilated by nace. The opening penetrates the No. 6 seam of coal, which is from 10 to 12 feet in thickness. Fourteen miners and three day were employed. When visited on November 15 I found this in good condition.

BRIAR HILL

ated at Prosper, on the Columbus, Shawnee and Hocking rail- and is operated and managed by J. G. Underwood. It is a opening, worked on the double entry system, and is ventilated furnace. It is opened into the No. 6 seam of coal, which is here feet and eight inches in thickness. Ten miners and two day were employed here. On August 4 I found the mine idle and e around.

NO. 139

uated near New Straitsville, on the Columbus, Hocking Valley Toledo railway, and is operated by George Howe, who is also ger. This is a drift opening, worked on the single entry system, as natural ventilation. The opening penetrates the No. 6 seam al, which is from 10 to 12 feet in thickness at this point. ty miners and one day hand were employed. On November 14 nd this mine in good condition. They were mostly drawing s and expected to have the mine worked out in a few months. are going to take out all of the coal they can get from the d district, and then open on the other side of the mountain to he remainder of the solid coal.

NO. 49

ated at New Straitsville, on the Columbus, Hocking Valley and lorailway, and is operated by Alexander & Company. Wm. Carl has entire supervision. This is a drift opening, worked on the e entry system, and has natural ventilation. The opening pene- s the No. 6 seam of coal, which is here from 10 to 12 feet in ness. Thirteen miners and three day men were employed. n visited on August 9 I found this mine in very good condition.

PEACOCK

Is located at Hemlock, on the Columbus, Shawnee and Hocking railway, and is operated by Roberts & Davis. Evan Roberts is superintendent and mine boss. This is a shaft opening, 20 feet in depth, to the No. 6 seam of coal, which at this point is six feet in thickness. This mine is worked on the double entry system, and has furnace ventilation. Thirty miners and 12 day men were employed. When visited on September 4 I found it in good order.

NO. 5

Is situated at New Straitsville, on the Columbus, Hocking Valley and Toledo railway, and is operated by the Troy Coal Company. James Daugherty has entire supervision. This is a drift opening worked on the double entry system, and has natural ventilation. It is opened into the No. 6 seam of coal, which at this point is from 10 to 12 feet in thickness. Fifteen miners and two day men were employed here. When visited on August 9 it was in good order. They are now drawing pillars.

OHIO CLAY NO. 4

Is situated at Shawnee, on the Columbus, Shawnee and Hocking and Baltimore and Ohio railways. W. D. Richardson is superintendent and William E. Davis is bank boss. This is a shaft opening, 80 feet in depth, worked on the single entry system, and ventilated by a fan. At this point the clay runs from seven to nine feet in thickness. Ten miners and three day men were employed. When inspected on August 15 this mine was in very good order.

LIST OF MINES EMPLOYING LESS THAN TEN MEN.

Name of mine.	Kind of opening.	Name of owner or operator.	No. of miners.	P. O. address.
Irvin	Drift	John Fair	3	N. Lexington
Ohio Coal No. 1.	"	Ohio M. & M. Co.	7	Shawnee
Dew	"	Hart & Co.	6	Glouster
Crooksville	"	R. D. Brown	3	Crooksville
Beech Grove No. 5.	Slope	Beck Bros	2	McLuney
No. 3	Drift	Daniel Davis	5	N. Lexington
Eagle	"	Crawford & Gaver	5	McCunesville
Welland	"	Joseph Welland (s'pend'd)	5	N. Lexington
Cox No. 11	"	Mathew Cox	4	N. Straitsville
No. 7.	"	White & Thompson	8	"
No. 7	"	Stewart Coal Co	8	"
No. 33a	"	J. C. Faine	3	"
No. 47a	"	M. Wilson & Co.	8	"

MUSKINGUM COUNTY.

PRINCESS

Is located in Coal Hollow, near Sealover Station, on the Zanesville and Ohio railway, and is operated by the McCoy Coal Company. John Winefordner is superintendent and J. F. Berkemer is mine boss. This is a drift opening, worked on the double entry system, and is ventilated by a furnace. It is opened into the No. 7 seam of coal, which is here from four to six feet in thickness. Thirty-eight miners and six day men were employed. When visited on September 22 this mine was idle, hence no examination was made.

GARRETT

Is located one mile from Sealover Station, on the Zanesville and Ohio railway, and is operated by Joseph Garrett. Spencer Garrett is superintendent, and A. E. Garrett is mine boss. This is a drift opening, worked on the single entry system, and is ventilated by a furnace. It is opened into the No. 6 seam of coal which is here two feet and six inches in thickness. Fifteen miners and three day men were employed. When inspected on September 22, I found the mine in fair order with the exception of rooms on the left hand side of the entry which were short of air. I ordered that a piece of canvas be placed close to the entry which would send the air into the rooms. This was done as soon as possible, which greatly improved the ventilation of the mine.

NEFF (NOW CALLED "DEWEY")

Is located in Coal Hollow, near Sealover Station, on the Zanesville and Ohio railway, and is operated by the Dewey Coal Company. H. L. French is superintendent, and Charles Davis is bank boss. This is a drift opening, worked on the single entry system, and ventilated by a furnace. The opening penetrates the No. 6 seam of coal which is here three feet in thickness. Fifteen miners were employed. When visited on September 22, I found the miners out on a strike, they claiming their screen was larger than others in the district. Mr. Farms went there and settled the dispute and the men went to work after a stop of several weeks, using the same screen.

GRANGER

Is located near Buckeye Station, on the Zanesville and Ohio railway and is operated by the Siler Coal Company. John Winefordner has entire supervision. This is a drift opening, worked on the double entry system, and employs furnace ventilation. It is opened into the No. 6 seam of coal which is here three feet and six inches in thickness. Thirty-eight miners and seven day men were employed. On September 22, I found the mine idle and made no inspection.

CANNELVILLE

Is located at Cannelville, on the Columbus, Shawnee and Hocking railway, and is operated by John McNally. He is also manager, and Harry Anders is mine boss. This is a drift opening, worked on the double entry system, and uses furnace ventilation. It is opened into the No. 6 seam of coal which is here four feet in thickness. Twelve miners and three day hands were employed. On August 30, I found it idle, so no inspection was made.

MAYNARD

Is located near Cannelville, on the Columbus, Shawnee and Hocking railway, and is operated by Maynard Bros. Bruce Mauk is superintendent, and Charles Anderson is mine boss. It is a drift opening worked on the double entry system, and has furnace ventilation. It is opened into the No. 7 seam of coal which is here four feet in thickness. Thirty-five miners and four day hands were employed. On August 29, this mine was found in very good order.

WERNERS NO. 8

Is located near the Marietta road, one mile from Zanesville, and is operated and managed by Wm. E. Werner. James Foutz is mine boss. This is a shaft opening, 81 feet in depth, worked on the single entry system, and ventilated by a fan. Fifteen miners and two day hands were employed. On August 29, I found it in fair condition.

EDWARDS

Is situated at Cannelville, on the Columbus, Shawnee and Hocking railway, and is operated and managed by A. M. Sloan. This is a drift opening, worked on the single entry system, and is ventilated by a fire basket. It is opened into the No. 6 seam of coal which is here three feet and six inches in thickness. Ten miners and two day hands were employed. On August 30, this mine was found idle and no examination was made.

DIAMOND NO. 2

Is situated at Romine Station, on the Bellaire, Zanesville and Cincinnati railway, and is operated by C. W. Joslin & Company. H. N. Houk has entire supervision. This is a drift opening, worked on the double entry system, and has furnace ventilation. It is opened into the No. 7 seam of coal which at this point is six feet in thickness. Seventeen miners and five day men were employed. When inspected on September 21, I found it in good condition. This mine has a very tender roof which stands better in rooms than in entries. They use plenty of timber and keep it in good order.

CHESTNUT VALLEY NO. 1

Is located near the Marietta road, two miles from Zanesville. It is operated by Michael Fisher, with M. L. Fisher as superintendent, and Wm. Ray mine boss. This is a drift opening, worked on the single entry system, and ventilated by a furnace. It is opened into the No. 6 seam of coal which is here three feet in thickness. Twelve miners were employed. When visited on September 20, this mine was found in good condition.

LIST OF MINES EMPLOYING LESS THAN TEN MEN.

Name of mine.	Kind of opening.	Name of owner or operator.	No. of miners.	P. O. address.
Fisher No. 2	Drift	C. W. Fisher	2	Zanesville
Miles No. 2	"	Joseph Miles	2	"
Niebel	"	C. W. Niebel	1	"
Wallwork No. 1	"	Bridwell & Barton	2	"
Peacock	"	J. C. Davis	8	"
Lane	"	Edgar Dickison	3	Ellis P. O.
Bridwell	"	J. Bridwell	6	Zanesville
Spinks	"	Henry Spinks	2	"
Wheeler No. 2	"	Joseph Purcell	3	"
McConnel	"	McConnell & Cox	4	Dillon
Rowdock	"	Wm. Dickson	2	Zanesville
Harpers No. 3	"	Eben Harper	3	"
Harpers 4 foot	"	"	1	"
Smith No. 1	"	Wm. Uphold	2	"
Lehew	"	G. M. Lehew	8	"
Griener No. 2	"	J. R. Griener	4	"
Eagle	"	R. G. Thompson (susp'n'd)	"	White Co
Richards	"	C. A. Barton	3	Zanesville
Lewis Harper	"	Lewis Harper	1	"
Swanks No. 2	"	Noah Swank	3	"
Bealers	"	Chas. A. Barton	2	"
Locust Grove	"	G. W. Besser	3	"
East Hill	"	A. D. Morrison	8	"
Morgan	"	John Morgan (susp'n'd)	"	Dillon
George Porter	"	George Porter	6	Coaldale
Frank Dick	"	Frank Dick	5	"
Wallwork No. 2	"	George Harper	4	Zanesville
Pansler	"	J. B. Pansler (aband'd)	"	"
McCormick	"	J. W. McCormick	2	Ellis
McCormick No. 2	"	"	2	"
Welch	"	Oscar Welch	4	Zanesville
Fletcher	"	Ewing Fletcher (susp'n'd)	"	Ellis
Moores No. 4	"	Rachel Moore	3	"
Starkey	"	Wm. Dick	2	Coaldale
Baughman No. 1	"	John G. Baughman	1	Roseville
Baughman No. 2	"	"	2	"
Bruce	"	Robert Wallace	2	"
Harpers 3 foot	"	Eben Harper	8	Zanesville
Moores No. 1	"	J. W. Foutch	4	"
Oak View No. 2	"	J. A. Detenback	3	"
Buckeye	"	Buckeye Pressed Brick Co	6	"
Kenedy	"	J. W. Severance	3	"
Wheeler No. 1	"	Wm. L. Combes	3	"
Chestnut Vally No. 2	"	M. L. Fisher	1	"
Hoff No. 2	"	Wm. Combes	3	"
German	"	John McNulty	1	"
Hoff	"	"	2	"
Shultz	"	Chas. L. Shultz	2	"
Sealover	"	August German	4	"
German No. 2	"	"	5	"
Miles No. 1	"	Joseph Miles	1	"

LIST OF MINES EMPLOYING LESS THAN TEN MEN—Concluded.

name of mine.	Kind of opening.	Name of owner or operator.	No. of miners.	P. O. address.
as 3 foot.....	Drift..	J. Severance.....	3	Zanesville
nders.....	"	James Alexander.....	4	"
son No. 2.....	"	J. M. Morrison.....	3	"
ers.....	"	Wm. A. Werner.....	3	"
bell.....	"	M. W. Campbell.....	2	Hopewell
s.....	"	Isaac Sellers.....	2	"
ut Hill.....	"	Henry Blaney.....	6	"

MORGAN COUNTY.

ROSE

located at Deavertown Station, on the Columbus, Shawnee and
ing railway, and is operated by Carding Bros. George Carding
ntire supervision. This is a drift opening, worked on the double
system, and is ventilated by a furnace. It is opened into the
seam of coal which is here three feet and eight inches in thick-
Twenty-five miners and three day men were employed. When
d on August 4, it was found in fair condition.

BLACK DIAMOND

located one-half mile from Deavertown Station, on the Columbus,
nee and Hocking railway, and is operated by the Black Diamond
Company. John French is superintendent, and L. C. Lucas is
boss. This is a drift opening, worked on the single entry sys-
and is ventilated by a furnace. The opening penetrates the No.
m of coal which at this point is three feet and eight inches in
ness. Twelve miners and two day men were employed here.
ugust 4, I found this mine in fairly good condition.

NOBLE COUNTY.

GLENWOOD

located near Glenwood Station, on the Cleveland and Marietta
ay, and is operated by J. J. Phillips who is also manager. W.
avis is mine boss. This is a shaft opening, 110 feet in depth to

the No. 7 seam of coal which is five feet in thickness at this point. The mine is worked on the double entry system, and is ventilated by a fan. Eighty miners and 10 day men were employed. On October 14, I found it idle. The fan was going, so I thought it best to make an inspection as this mine generates a little fire damp. I found it in fair condition and detected but a small amount of gas in the no entries. This mine has been working in a fault ever since it was opened.

MT. EPHRAIM

Is located at Mt. Ephraim, and is operated by S. J. McConnell, who is also general manager. This is a drift opening, worked on a single entry system, and is ventilated by a stove. The opening penetrates the Meigs Creek seam of coal, which is here three feet and six inches in thickness. Ten miners and two day hands were employed. I visited this mine twice. On October 18 I found it in very good condition. On November 2 I was called here to investigate the cause of the death of William Brand, who was injured by a fall of slate on October 5 and died on the 30th of that month. In this mine there is a draw slate six inches thick, which must be taken down before a second cut is made. He had been repeatedly notified in regard to this, but instead of taking the slate down or setting props to keep it up, he went under it to make another cut, when the slate fell on his head. Clyde Garrett, who worked with him, says that Mr. Brand went to work under it without even sounding it in spite of the fact that the man in the room next to his told him several times to be sure and take the slate down, which he knew was very treacherous. To all this he paid no attention.

LIST OF MINES EMPLOYING LESS THAN TEN MEN.

Name of mine.	Kind of opening.	Name of owner or operator.	No. of miners.	P. O. address.
Love.....	Drift.	Theodore Love.....	3	Flag
Yonally No. 1.....	"	Wm. Yonally.....	2	"
Yonally No. 2.....	"	John Daniels.....	2	"
Miller.....	"	H. D. Miller.....	4	"
Day.....	"	W. E. Day.....	2	"
Jumbo.....	"	J. W. Young.....	2	Sarahsville
Smith.....	"	Smith & McMilen.....	6	"
Pettay.....	"	T. A. Pettay.....	3	"
D. R. Curtis.....	"	D. R. Curtis.....	2	Flag
Markee.....	"	Fletcher Markee.....	2	Stafford
Robertson.....	"	Hugh Robertson.....	2	"
Okey.....	"	Okey & Sloan.....	1	"
Vance No. 1.....	"	Wesley Johnson.....	2	"
Vance No. 2.....	"	".....	2	"
Warfield.....	"	J. B. Hupp.....	1	Berne
Leisure.....	"	Willis Leisure.....	3	"
Miller.....	"	Henry Miller.....	4	Fulda
Boyd.....	"	Theodore Boyd.....	2	Ashton
Archer No. 1.....	"	M. Archer.....	2	McLeary
Archer No. 2.....	"	".....	2	Enoch
Bryan No. 2.....	"	J. W. Bryan (abandoned).....	"	"
Polin No. 2.....	"	Andrew Polin.....	6	Perryopolis
Merry No. 2.....	"	H. L. Moore.....	3	"
Archer No. 1.....	"	S. M. Archer.....	2	McLeary
Henderson.....	"	Willey Bros.....	3	Mt. Ephraim
McKee.....	"	C. J. McKee.....	6	Caldwell
Beymer.....	"	F. S. Beymer.....	1	Summerfield
McLaughlin.....	"	W. M. McLaughlin.....	3	Sarahsville

REPORT OF THOMAS MCGOUGH,

Inspector of the Fourth District, from November 15th, 1897, to
November 15, 1898.

R. M. HASELTINE, Chief Inspector of Mines, Columbus, Ohio :

DEAR SIR: I have the honor to submit herewith my annual report of the Fourth Mining District of the State for the fiscal year which began on November 15, 1897, and terminated on November 15, 1898. In it you will find contained the number of visits made to each mine, as well as a record of the improvements made for the health and better protection of the miners engaged in the industry. It is found that 11 new furnaces were built, two fans were erected, 12 air shafts sunk and 24 second openings completed. One set of safety catches was attached, one speaking tube placed in position, and two fire baskets were suspended for the better ventilation of small mines, making a total of 53 permanent improvements secured during the year.

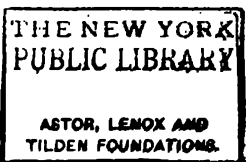
Two new mines were opened during the past year. One was the Klondike, a slope 150 feet in depth sunk by Loomis, Moss & Company, at a point on the Baltimore and Ohio railway about six miles west of Cambridge. The operators were unfortunate in striking a large horseback a short distance from the foot of the slope. At quite an expense it was penetrated, the coal coming in 5½ feet in thickness, and at the close of the year prospects were flattering for a fine field of coal. This is a machine mine, ventilated by a fan, and is well equipped to handle a large tonnage of coal.

The Imperial is a shaft mine, 110 feet in depth. It was opened by the Hamilton Mining Company at a point on the line of the Cleveland and Marietta railroad near Derwent. The management have spared neither labor nor expense to make this a first-class mine in every respect. The coal is 6½ feet in thickness and is capped with a splendid roof. So far as developed the mine gives promise of being among the finest in the Cambridge field. Especial pains were taken with the equipment of this mine, and as a result no one has been injured since the breaking of the sod.

Throughout the district the mining laws have been generally observed. The relationship between the department and the people engaged in the industry has universally been pleasant, and with few



THOMAS MCGOUGH,
INSPECTOR FOURTH DISTRICT, BRIDGEPORT, OHIO.



exceptions the conducting of the department has been without friction. Thanking you for advice and assistance received during the year, I am,

Very respectfully yours,

THOMAS MCGOUGH,
Inspector Fourth District.

Bridgeport, Ohio, November 15, 1898.

BELMONT COUNTY.

ECHO

Is located on a branch of the Baltimore and Ohio railway near St. Clairsville, and is owned by S. H. McGregor. On November 27 George Taylor, a miner, was fatally injured by a piece of soapstone falling on him while at work at the face of his room. He died two days later. No blame could be attached to anyone as the room was well posted in every respect. Four visits were made during the year, and with the exception of some timber which was ordered erected on the main entry, the mine was found in fair condition. Richard Noble has superseded J. T. Adams as mine boss. This is a drift opening, and has furnace ventilation. From five to 12 miners are employed.

COCHRANS

Is situated at Bailey's Mills on the main line of the Baltimore and Ohio railway. It is owned and operated by Alex Cochran of Quaker City. A new opening was made during the year to improve the ventilation. The drainage is bad, as they have drawn the pillars in several places, thus letting in surface water. At the last inspection 12 inches of water covered the track over which they were trying to haul coal. I ordered that a ditch be cut at once to take this water off the road through which the men and mules have to travel. This is a drift opening, into a four-foot seam of coal. The mine is provided with furnace ventilation. Dode Smith is the mine boss. Forty miners and 10 day men were employed. Four inspections were made during the year.

GAYLORD

Is located near Don postoffice on the Cleveland and Pittsburg railway. It is operated by Roderick & Jones, lessees. This mine is a drift opening, into the No. 8 seam of coal. It has been a source of

trouble to the department during the entire year. The roof is very brittle and in order to secure general safety it should be timbered as the work advances, especially the main entry, in order to prevent the sides and top from falling down and filling up the drains, thus covering the track with mud and water, thereby injuring the sanitary conditions and entailing a great expense. Three mules are now required to do the work which one should do. Five inspections were made during the year and a new pit boss was in charge each time. The scales were tested twice and found correct. Thirty miners and seven day men were employed. The mine uses furnace ventilation, and is managed by J. O. Jones.

LAUGHLIN

Is located near Martin's Ferry and is the property of the Laughlin Nail Mill Company. William Glessner is superintendent and Leander Woods is mine boss. This is a drift opening, and is ventilated by a fan. A squeeze on the main entries of this mine necessitates the employment of men both day and night to cross timber in order to prevent an accident. The parallel entry to the main, which was used for the air course, fell in for a distance of 400 feet, thereby impairing the ventilation. The face entry was started double turn from both ends and driven out to daylight, so that at the end of the year the mine was in good condition. Eight visits were made. Forty-five miners and nine day hands were found employed here. A system of tail rope haulage was installed last spring.

WHEELING CREEK NO. 1

Is situated near Bridgeport on the Cleveland, Lorain and Wheeling railway, and is owned and operated by the Wheeling and Pittsburgh Coal Company. J. E. Waters is superintendent and Walter Biddington is mine boss. This mine has only worked about one-fourth of the time during the year, but the management has endeavored to keep it in compliance with the law. Five inspections were made, and with the exception of a few minor improvements which I ordered made, I found this mine in good order. It is a drift opening, and is provided with furnace ventilation. One hundred and ninety miners and 46 day men were employed.

WHEELING CREEK NO. 2.

Is located near No. 1 and is owned and managed by the same parties. It remained suspended throughout the entire year.

CRESCENT

Is located at Crescent on the Cleveland, Lorain and Wheeling railway, and is owned and operated by the same parties as are the Wheeling Creek mines. William Hanson is the mine boss. The ventilation has been unsatisfactory, one of the furnaces used being in bad condition and liable to collapse at any time, but they keep propping it up with rails and old iron to keep the arch from falling in. This defect, together with the location of the furnace, gives bad results in a large mine where a vast amount of powder is used during working hours. The main entry has been driven through the hill to Maynard during the year. This will help the ventilation, but not sufficiently to supply the number of men employed. Two hundred miners and 33 day men find employment here. This is a drift opening.

MAPLE HILL

Is located at Barton on the Cleveland, Lorain and Wheeling railway, and is owned and operated by the Maple Hill Coal Company. Five visits were made to this mine during the year. The first was on January 21, to investigate the cause of an accident by which Ferdinand Grobin, a boy 17 years of age, was killed on January 20. He was working with his father in a room, when a piece of soapstone fell near the face, injuring him so that he died three hours later. The room was well posted, but a slip was the cause of the accident. An addition of 20 feet has been put up to the furnace stack and the mine entrance has been remodeled, which helps the ventilation, but there is still no surplus air in circulation. I tested the scales here and found them weighing correctly. Ninety-five miners and 22 day hands find employment here. George Atherton is superintendent and John Woodyat is mine boss.

BOGGS NO. 1

Is located near St. Clairsville, on a branch of the Cleveland, Lorain and Wheeling railway, and is owned by Edward Boggs. It was visited on January 31, May 6 and July 21. Timber was ordered erected on the main entry upon the two first dates, but they neglected doing so, and when last visited the mine was abandoned.

BOGGS NO. 2

Is a new mine, located 650 feet south of the old opening, and it is owned and managed by the same parties. John Baugh is mine boss. Two visits were made, one when the shaft was being sunk. On

October 17 the air shaft was completed and a temporary furnace was in use, but I advised that they erect a good furnace as soon as possible. Twenty-four miners and three day men were employed. I found the mine in good condition.

TAGGARTS

Is located near Boggs, and is owned and managed by Joe Schwindler. Three visits were made. On January 31 the two butt entries, where all the men were at work, were creeping so badly that I ordered tools and men to be removed until they could be timbered from end to another. They caved in before a week and all the work that had since been done has been to drive entries to open up new work. Twenty-four miners and five day men were employed. This is a drift opening, and is provided with furnace ventilation.

FLUSHING

Is located at Flushing, on the Cleveland, Lorain and Wheeling railway, and is owned and operated by the Flushing Coal Company. G. Williams is superintendent and mine boss. This is a machine mine, the Harrison being used. They work very satisfactory, as the mine has a very good roof. Three visits were made, and each time the mine was in good order. This is a drift opening and employed 10 miners and 11 day men.

ROCK HILL

Is a drift opening, located near Flushing, on the Cleveland, Lorain and Wheeling railway. This mine has changed hands during the year. Miller and Townsend took the place of the Rock Hill Coal Company. A new furnace was erected. They have a great deal of water to contend with, and have put in wooden pipes instead of iron, which are giving good results. On November 15 I investigated the cause of a fatal accident to John Sevar, a miner 18 years of age. He was working in a room with his brother-in-law. Near the center of the room there was a loose stone, which they were trying to take down. They got an empty car and started to load the stone without a pry bar, and, as a consequence, it fell with the above results. John Sevar is the superintendent and Joe Lewis is mine boss. One hundred miners and 26 day men were employed. Five visits were made during the year.

WALNUT HILL

Is a drift opening, located at Yorkville, on the Cleveland and Pittsburgh railway, and is owned and operated by the Ohio and Pennsylvania Coal Company. When visited on March 2 the air at the head of the workings was very weak, caused by the obstruction of the air course. On April 20 30 men were removed until some improvements were made in the ventilation. The scales were tested and found correct. On July 20 all previous orders had been complied with and the mine was in fair order. The management is talking of installing electric machines and moving the tippie farther up the hollow. Ninety-two miners and two day men were employed here. Charles Robbins is superintendent and John McLaughlin is mine boss. This mine is provided with furnace ventilation.

.ETNA STANDARD

Is a drift opening, located at Etnaville, and is the property of the Etna Standard Iron and Steel Company. Roger Ashton acts as superintendent and mine boss. Very little work was done here during the year, as the mills are using natural gas for fuel. Three visits were made and each time I found the mine in good condition. Five men were employed.

NAIL MILL

Is located at Bellaire and is owned and operated by the Bellaire Steel Company. Chalkley Dawson is superintendent and Jacob Long is mine boss. This mine has been practically suspended for 15 months, the large mill using natural gas in nearly all the departments for fuel. On October 1, however, they resumed the use of coal, and 63 miners and nine day men were then employed. They are preparing to put in electric machines and an electric motor, instead of the steam locomotive now in use, for hauling coal out of the mine. Three visits were made during the year and each time I found the mine in good order. It is a drift opening, and has fan ventilation.

SCHICKS

Is located near Bellaire and is owned and operated by Schick and Turnbull. A new air shaft was sunk at the head of the workings during the year, and the company intend to erect a fan for ventila-

ting, as the air was very poor until the air shaft was finished. Several minor improvements were ordered on the four visits which I made. This is a drift opening, and has furnace ventilation. James Turnbull is superintendent and William Turnbull is mine boss. Forty miners and eight day men find employment here.

BELMONT NO. 2

Is located in Bellaire, and is owned and operated by the Belmont Coal Company. Inspections were made on February 24, May 16, July 14 and November 2. On the first visit I found them driving a single entry for a haulway and air course, and they were using a hand fan for ventilation. The air was carried through pipes along the side of the entry, which made sufficient air for the men to work. This has since been completed and the mine is in good order. Robert Fielding has taken the place of D. B. Brooks as mine boss. This is a drift opening, and has furnace ventilation. Forty miners and seven day men find employment here.

PITTSBURG

Is a slope opening, into the No. 8 seam of coal, near Bellaire, but it has been suspended all the year. The Block Coal Company of Pittsburgh have men at work timbering and cleaning up, and it is the intention to install mining machinery when ready to operate. J. P. Woods has charge of the mine and eight men were employed.

WEGEE

Is a slope opening, south of Bellaire, and is operated by John Hall who is also manager. On March 1, the mine was in bad condition as the air course had caved in at several places. The number of men was reduced to twelve, and five weeks' time was given the management to put the mine in lawful condition. Forty yards remained to be driven on April 11, as the flood had retarded the work, but they were pushing it as fast as possible. I gave orders that no firing be done except at quitting time. This mine employs furnace ventilation.

CAPTINA

Is a shaft opening, 65 feet in depth, and is located on the Bellaire Zanesville and Cincinnati railway, and is owned and operated by the Captina Coal Company. The mine has worked about half of the year.

and on idle days they were repairing and retimbering the entries. The safety catches were tested on September 21, and found to work all right. The scales were also tested and found to weigh correctly, but the pump was out of order causing the water to rise over the tracks keeping them muddy. I ordered that this be remedied, also that the ropes be changed and that the covers on the cages be repaired. Twelve miners and four day men were employed. This mine is provided with fan ventilation. Four visits were made during the year. M. V. Gates is superintendent and mine boss.

STANDARD

Is located on the Baltimore and Ohio railway, three miles west of Bellaire, and is owned and operated by Alex Neff. Inspections were made on February 21, May 11 and August 16. On the first visit an addition had been put to the furnace stack, but the break-throughs between rooms were in bad order causing too much friction of the air. The necessary orders were given. When last visited, the obstructions were ordered removed from the air course, as the air was very weak at the face of entries. I also advised the sinking of a new air shaft, and the erection of a new furnace to properly ventilate the mine. It is a drift opening, and has furnace ventilation. Thirty-eight miners and 10 day men find employment here. Robert Kidd is mine boss.

BLACK DIAMOND

Is located on the St. Clairsville branch of the Baltimore and Ohio railway, and is owned and operated by Troll Bros. C. Troll is manager. Four visits were made to this mine during the year, and with the exception of a great deal of carelessness in the making of break-throughs between rooms at the proper distance, there was not much to complain of. After talking to the superintendent and explaining matters to him, my orders were carried out. This is a drift opening, and has furnace ventilation. Sixty-five miners and 13 day men were employed. M. O. Grady is mine boss.

O. & W. VA.

Is situated near the Black Diamond mine and is owned and operated by the Ohio and West Virginia Coal Company. C. Troll is superintendent, and James Sklenar is mine boss. Three inspections were made during the year and each time I found the mine conducted in

full compliance with the law. Mr. Sklenar understands his business and takes great pride in keeping his mine up to the required standard. This is a drift opening, and has furnace ventilation. There are eight miners and eight day men were employed.

GLEN

Is located near Glenco, on the Baltimore and Ohio railway, owned and operated by the Glen Coal Company. During the overcasts were put in on the main entry to replace doors and are giving good results. The scales were tested and found correct. The management contemplates the installation of mining machinery in the near future, also a system of tail rope haulage. Fifty men and 14 day hands were employed. This is a slope opening, and is provided with fan ventilation. Three visits were made during the year. W. G. Simpson is superintendent, and James Fryman is mine manager.

FRANKLIN

Is located at Franklin, on the Baltimore and Ohio railway. This is a drift opening, owned by Owen Meehan. It was in operation a few weeks of the year. From 75 to 100 miners were employed. A furnace is used as a means of ventilation.

MINES EMPLOYING LESS THAN TEN MEN.

of mine.	Kind of opening.	Name of owner or operator.	No. of miners.	P. O. address.
	Drift	Keller Bros	2	W. Wheeling
	"	David Boston	4	Bridgeport
	"	Koehnline Bros	8	"
ghy	"	James McConaughy	4	"
No. 1	"	E. McConaughy	6	"
No. 2	"	Meister Bros	2	"
	"	John Wilson	2	"
	"	John E. Klee	2	Klee
Gorrell	"	Mrs. Gorrell	6	Bellaire
	"	Israel Pelkey	4	"
Archer	"	Davis & Archer	4	"
s	"	J. Musgrove	3	"
	"	J. Robinson	2	"
	"	Lewis Pelkey	3	"
	"	Chris Rosser	3	"
	"	W. S. Glasgow	3	Klee
	"	James McConaughy	1	Bridgeport
No. 1	"	Belmont Coal Co	7	Bellaire
	"	Nail Mill Co	4	"
	"	Lewis Seabright	4	Martins Ferry
	"	Morris & Sand	7	"
	"	Hellings Bros	3	"
	"	George Kiger	6	"
	"	Lephardt & Burns	3	"
	"	George Heldt	3	"
	"	C. Sedgwick	2	"
	"	D. K. Allen		
	"	W. P. Williams		Barton
	"	Frank Coss		"
	"	George Ayers	3	"
	"	Davey Bros	6	Baileys Mills
	"	J. Owens	2	Powhatan
	Slope	S. Fielding	3	"
	Shaft	Jacob Schnegg	2	"
	Slope	George Duvall	3	"
	Drift	M. McConaughy		
	"	J. Reline	5	St. Clairsville
	"	Renkes Bros.	3	"

COSHOCTON COUNTY.

CONESVILLE NO. 1

d near Conesville, on the Pittsburg, Cincinnati, Chicago and
railway, and is owned and operated by David Davis. Very
l was taken out of this mine during the year, as the main
s driven through the hill, and they intend to put a haulage
the tunnel and open a new mine in the hills beyond. Six
e employed shooting down top and laying a new track, which,

when completed, will be able to handle all the coal necessary to keep the tipples going. James Murphy is mine boss. This is a drift opening, and has furnace ventilation. I visited this mine three times during the year.

CONESVILLE NO. 3

Is situated near the No. 1 opening, and is owned and managed by David Davis. William Hall is mine boss. Three inspections were made during the year. Each time I found the condition of the mine unsatisfactory, both as to ventilation and drainage. This is partly due to the single entry system, but more so to the fault of the management and the carelessness of the miners employed. They neglect to close the doors on the room entrances and they throw dirt and slate in the crosscuts, thus obstructing them and preventing the air current, which is not strong, from going to its proper channel, and the men who should attend to these things and see that the air reaches the miners are generally found to be dumping slate or hurrying up the drivers at the passways. This mine employed 49 miners and 12 day men. It is a drift opening, and has furnace ventilation.

CONESVILLE NO. 4

Is located near the No. 3 opening, and is owned and managed by the same parties. I visited this mine also three times during the year and might say that the same conditions exist here as in No. 3, only as this will be the main opening for Nos. 3 and 5 when the connections are made, there will be a good opportunity to properly ventilate all of the mines, if an air shaft is sunk and a furnace erected. The mine being the center of the three, Nos. 3 and 5 could be used as an intake and they would give ample ventilation, if my orders are carried out and the mining laws of the State respected. Fifty-three miners and five day men find employment here.

CONESVILLE NO. 5.

The coal is very low in this mine and from six to ten men are employed at this time.

FRANKLIN WEST SIDE

Is located near Franklin, on the Pittsburg, Cincinnati, Chicago and St. Louis railway, and is owned and operated by the Columbus Mining Company. F. N. Barnes is superintendent and Sam Kitchen is mine boss. The solid coal in this mine will soon be worked out, but the

will have several years' work on the pillars. Three inspections were made during the year, and with the exception of some minor improvements, which were needed, I found the mine in fair condition. Twenty-one miners and three day men were employed. This is a drift opening, and is provided with furnace ventilation.

FRANKLIN EAST SIDE

Is situated near the above named mine, and is managed by the same parties. During the year the main entry was driven through the hill and timbered, which adds to the general safety and sanitary condition of the mine. The scales were tested and found correct. A local strike reduced the number of miners to 10. Four day men were employed. This mine is provided with furnace ventilation.

CASSINGHAM

Is located on the Cleveland, Canton and Southern railway, and is owned and operated by the Coshocton Coal Company. Charles Cassingham is superintendent and James McCormick has superseded Thomas Williams as mine boss. During the year a connection was made with the old mine, which greatly improves the ventilation of both mines, as this gives them two inlets for the air instead of one. I advised that they sink an air shaft at the lowest place in the mine and so bring all the water to that point, then remove the steam pipes from the deep entry, as their radiating effects are bad on the ventilation. I inspected this mine four times during the year and on each occasion it was in good condition. One hundred miners and 14 day men were employed. This is a drift opening, and has furnace ventilation. Rope haulage is used.

DRAKE

Is situated near Coshocton, on the Cleveland, Canton and Southern railway, and is operated by the Coshocton Coal Company. Charles Cassingham is superintendent and James Fitch has taken charge of the inside of the mine in place of John Williams. The mine worked very little during the year. I inspected it twice, and with the exception of a few minor improvements, which were needed, I found the mine in fair condition. Sixteen miners and four day men were employed. This is a drift opening, and is provided with furnace ventilation. The mine is conducted on the single entry system.

CONLEY NO. 2

Is a drift opening on the Cleveland, Canton and Southern rail and is operated by the Bowers Coal Company. J. K. Bower superintendent and Uriah Maxwell is mine boss. A connection made during the year with the No. 3 mine, which has improved ventilation somewhat, but they are very careless about keeping air current up to the working faces, and they pay no attention whatever to drainage, as the mud is generally so deep that it is possible to see the rails. This is certainly false economy, and requires three mules to do the work of one, not counting the that is lost by the cars getting off the track and other stoppages are caused by trying to work under these conditions. Thirty miners and seven day men were employed. This mine has fur ventilation.

CONLEY NO. 3

Is located near the No. 2 opening, and is operated by the same parties. The same conditions exist here as in No. 2. The drainage is bad and the ventilation weak. Three inspections were made during the year, and each time I found violations of the mine laws. Twenty-four miners and six day men were employed. This is a drift opening, and is provided with furnace ventilation.

MORGAN RUN

Is a drift opening on the Cleveland, Canton and Southern rail and is operated by the Morgan Run Coal Company. L. B. Piper superintendent and Robert McCormack is mine boss. Four visits were made during the year, namely, March 10, May 25, August and November 9. On the second inspection a new air shaft was nearly completed at the face of the main entry. When next visit it was finished, and they were using it for an upcast, but the furnace was not built, and a fire basket was placed at the bottom of shaft, but it had not sufficient pressure to keep the air going the way, for when the electric motor with a loaded trip was going this would reverse the air, bringing the smoke from the basket back to the men. I stopped the mine until the furnace was built. On my next visit this had been done, and the mine was well ventilated in every respect. Seventy-eight miners and 19 day men were employed. This mine is worked on the double entry system.

WADE

ated near Morgan Run, and is owned and operated by the Coal Company. L. B. Piper is superintendent and James is mine boss. They have completed a new opening during year for the ventilation and an outlet for the water. This will be used to haul the slate out, as dumping ground near the is very scarce. Three visits were made to this mine during the year and each time I found it in fair condition. Seventy-eight men and 19 day men were employed.

HUDSON

ift opening on the Cleveland, Canton and Southern railway, operated by the Hudson Coal Company. C. Hudson is sole owner. Four inspections were made during the year, and on each found the mine in good order. On April 29 I investigated the of a fatal accident to Stephen Kerns, a miner. He was working in a room, when a piece of false roof fell on him, killing instantly. A slip in the roof was the cause of the accident. No blame can be attached to anyone. Seventy-five miners and nine day men were employed. This mine is worked on the single entry system, and is provided with furnace ventilation.

MINES EMPLOYING LESS THAN TEN MEN.

Name of mine.	Kind of opening.	Name of owner or operator.	No. of miners.	P. O. address.
No. 1	Drift	Dan Hudson	6	Coshocton
No. 2	"	Charles West	5	"
Ill.	"	Thomas Clough	4	"
No. 1	"	J. E. Aranbalt	5	"
	"	Ed. West	2	"
No. 1	"	J. H. Robson	8	"
	"	J. S. Davis	4	"
	"	Anderson Bell	2	Tyrone
	"	S. Kirker	2	"
No. 2	"	Luke Hall	5	Conesville
	"	Smith & Patten	2	Isleta
	"	Marian Davis	2	"
son.	"	Frank Poland	2	"
	"	Seth Poland	5	"
No. 1	"	Thomas Williams	8	"

GUERNSEY COUNTY.

GUERNSEY

Is a drift opening on the Baltimore and Ohio railway, and is operated by the Cambridge Coal Company. F. J. Kistler is superintendent and J. F. Wilson is mine boss. At the time of my visit, all the men were at work in the first hill endeavoring to get around the hill back. The ventilation, which was natural, was deficient, there were 18 men at work shooting at all hours of the day. I gave orders that a new air shaft be sunk and that a furnace be built at once. This was done, and at the end of the inspection year the mine was in good condition.

CCC.

This is a drift opening, situated on the Baltimore and Ohio railway and it is operated by the Cambridge Coal Company. F. J. Kistler is superintendent, and Hiram Cooley is mine boss. They have stalled mining machines here and put in a tail rope system during the year. On April 5, I stopped the main entries as there was danger of breaking into the old Guernsey mine which is full of water. I gave orders that the water be pumped out before the main entries were driven any further. I investigated an accident by which George McCall lost his life. He was drawing posts out of old rooms when a piece of slate fell on him, killing him instantly. No blame could be attached to anyone. I visited this mine five times during the year. Thirty miners and 10 day men were employed. A fan is used as a means of ventilation.

BRIAR HILL NO. 2

Is located near Cambridge, on the Cleveland and Marietta railway and was abandoned during the year.

BRIAR HILL NO. 3

Is located near the No. 2 opening and was also abandoned during the year. These mines belonged to the Hamilton Mining Company; they succeeded in drawing nearly all the pillars. They then made all suitable material to their new shaft at Derwent on the Cleveland and Marietta railway, seven miles from Cambridge.

NICHOLSON

Is situated on the Cleveland and Marietta railway, and is owned by the Ohio Coal Company. A. J. Warner is superintendent and D. E. Evans is mine boss. A new furnace was built during the year which has greatly improved the ventilation. On January 18, in company with Chief Inspector Haseltine, I investigated the cause of the death of Frank Beatty, a boy. His duty was to attend to the rollers on the tail rope haulage. He was standing at the first turn near the pit mouth to give the signal as the empty trip passed him. It is supposed that one of the splices on the rope caught near the inside bull wheel and the pressure was so great at the turn that it tore the shieve wheels from their places. The boy must have stepped to the inside of the turn when the rope caught him, killing him instantly. A local strike reduced the number of miners to 15 and the day men to seven at the close of the year.

PIONEER

Is a slope opening, near Byesville, and is owned and operated by the Pioneer Coal Company. W. H. Davis is superintendent, and George Shaw is mine boss. This mine has not worked regularly during the year as all of the solid coal is worked out and the men are drawing pillars. Three inspections were made during the year and each time I found the mine in fair condition, as the men were well supplied with timber necessary for their dangerous work, and every place was well ventilated. Eighty miners and 22 day men were employed. This mine has fan ventilation.

CENTRAL.

This is a shaft opening, near Byesville, and is operated by the Wills Creek Coal Company. This mine has been a source of trouble to the department during the year both as to ventilation and drainage. I visited it three times during the year and each time a new mine boss was in charge. As the condition of the mine was not the fault of any one of them, it was difficult to have my orders carried out. However, at the close of the year the mine was in better condition. James Hanna is now mine boss and is making some much needed improvements. W. H. Davis is superintendent. One hundred and twenty-five miners and 23 day men were employed here.

WALHONDING

Is located at Pleasant City, and is owned and operated by the Wills Creek Coal Company. W. H. Davis is superintendent, and George P. Bird is mine boss. This mine is one of the largest in the county, having 13 electric cutting machines at work night and day, the output being from 70 to 75 cars per day. This mine has also worked more days than any other in my district. I visited it four times during the year and with the exception of some carelessness on the part of the machine runners about cutting break-throughs between rooms, and a few safety holes that were ordered, the mine was conducted in compliance with the law. This is a shaft opening, and is provided with fan ventilation. A tail rope system of haulage is used. It is worked on the double entry system. Two hundred and fifty miners and 75 day men were employed.

CISCO

Is a shaft opening, located at Pleasant City, on the Cleveland and Marietta railway, and is operated by the Opperman Coal Company. Thos. Richards is superintendent and mine boss. I visited this mine five times during the year. On March 4, I investigated the cause of a fatal accident to George Hanzig, a miner. He started to shear a shot after it had been blasted and it fell on him. This was due to his own carelessness. On August 27, W. H. Savage, a boy working with his father in a room was caught by a piece of roof coal and killed. Electric mining machines have been installed here during the year and they have sunk a new air shaft after having gone through horseback 300 feet thick. The coal on the inside looks first rate and they have put in good tracks. From present appearances this mine will be among the large ones in the near future. Forty miners and 10 day men were employed. This mine is worked on the double entry system, and has fan ventilation. The coal is five and one-half feet thick.

HARTFORD.

This is a shaft opening, located at Hartford, and is operated by the Ellsworth Coal Company. W. H. Davis is superintendent and David Williams is mine boss. Four visits were made during the year. They have driven through a horseback 300 feet thick and ventilated with canvas along the side until the coal was reached. When last inspected the air course for this part was not completed, but it only

lacked a few yards. During the year the condition of the mine was unsatisfactory, as there was not a sufficient volume of air to keep the mine free from powder smoke. One hundred and thirty miners and 41 day hands were employed. This mine uses fan ventilation.

TRAIL RUN

Is located at Trail Run, and is operated by the Ellsworth Coal Company. W. H. Davis is superintendent and John Sigsman is mine boss. I visited this mine four times during the year and each time I found it in poor condition, especially on the south side, where the ventilation was deficient. I stopped this part of the mine, and then all the coal was taken from the north side. The tail rope haulage system has been extended, but they change mine bosses so often that the mine can hardly be kept in good condition. One hundred and fifteen miners and 56 day men were employed. This is a shaft opening, and is provided with fan ventilation. This is also a machine mine.

IMPERIAL

Is a new shaft opening, 100 feet in depth, and is located at Derwent on the Cleveland and Marietta railway, and is owned and operated by the Hamilton Mining Company. It is a machine mine, equipped with all modern improvements for handling coal above and below the surface. It has a steel tippie, with self-dumping cages of very modern design, and they have erected a 12-foot Brazil fan for ventilation. The coal is six feet thick and seems to be of good quality. The management deserves great credit for the manner in which they opened up and equipped their mine, as no accident of any kind has occurred. The first coal was hoisted on July 9. Two visits have been made. Twenty-three miners and nine day men were employed.

KINGS

Is a shaft opening, near Campbell's Station on the Baltimore and Ohio railway. It is operated by the Morris Coal Company. James Collins is superintendent and mine boss. Electric mining machines and an electric motor have been installed during the year, but they have had a great many horsebacks to contend with, which has kept the capacity of the mine below what it ought to be. Six visits were made during the year, one of which was to test the scales, which I found correct. On July 8 I investigated the cause of the death of Andrew Noble, a driver. A piece of slate fell on the passway,

knocking the trolley wire down and scaring the pony. Mr. No. 1 fell down and the wire caught him by the hand, shocking him badly that four days after he died from the effects. Safety measures were made along the main entry. One hundred and twenty miners and 47 day men were employed.

KLONDIKE

Is a new slope, 150 feet in depth, located six miles east of Cambridge on the Baltimore and Ohio railway, and is owned and operated by Loomis, Moss & Company. Harry Moss is superintendent and Will Rigby is mine boss. A horseback 300 feet thick was struck a yard after they had reached the coal. Naturally they were compelled to open the mine twice, but since that they have found very good coal inside, 5½ feet in thickness. This is a machine mine, fully equipped with all appliances to handle the coal. An air shaft 100 feet in depth has been sunk, and a 15-foot Brazil fan has been erected. When all connections are made the ventilation will be satisfactory. Arthur Edwards was hurt by a piece of slate on May 24 and died on August 21 from the effects of his injuries. An escapement way will be completed in the near future. Thirty miners and 14 day men were employed. The mine is worked on a double entry system.

FORSYTHE

Is a slope opening on the Baltimore and Ohio railway, and is operated by the Forsythe Coal Company. C. Forsythe is superintendent and Charles Rabe is mine boss. Three inspections were made during the year, and with the exception of some minor improvements which were ordered, the mine was found to be in good order. They have installed electric mining machines, which will no doubt be satisfactory to the management. Eighty-five miners and 17 day men were employed. This mine is provided with fan ventilation.

LIST OF MINES EMPLOYING LESS THAN TEN MEN.

Name of mine.	Kind of opening.	Name of owner or operator.	No. of miners.	P. O. address.
Briar Hill No. 1	Drift	D. Nicholson	5	Cambridge
Wilson	"	J. E. Wilson	3	"
Central Shaft	Shaft	J. A. Boyd	6	Craig
Deep Cut	Drift	James Burris	3	Cambridge
Ross Scott	"	Henry Oliver	7	"
Sayers	"	S. Sayers	3	Quaker City
Moore	"	J. S. Moore	2	"
Norris No. 2	"	C. C. Cheney	8	Post Boy

HOLMES COUNTY.

LIST OF MINES EMPLOYING LESS THAN TEN MEN.

Name of mine.	Kind of opening.	Name of owner or operator.	No. of miners.	P. O. address.
Mast	Drift	H. G. Mast	6	Millersburg
Killgore	"	Adolph Ackert	4	"
Harpster	"	D. Bildreick	3	"
Lookout	"	Wm. Gringleberger	8	"
Skelley	"	E. B. Skelley	1	"
Chevallard	"	John Chevallard	3	"
Horn	"	John Horn	3	"
Myers	"	E. D. Bowen	2	"
Carlin	"	J. B. Carlin	2	"
Farver	"	W. H. Farver	2	"
Winegard	"	K. Krenerick	2	"
Holmes Co.	"	G. C. Quinlin	3	Killbuck

MONROE COUNTY.

LIST OF MINES EMPLOYING LESS THAN TEN MEN

Name of mine.	Kind of opening.	Name of owner or operator.	No. of miners.	P. O.
Bruce.....	Shaft	J. W. Bruce.....	8	Aitch
Dennis.....	"	B. S. Hawkins.....	2	
Morris.....	Drift	Wm. Morris.....	2	Wood
Cotts.....	"	George Cotts.....	3	
Baker.....	"	George Baker.....	2	
Carlton No. 1.....	"	S. R. Carlton.....	2	Jerus
Steel.....	"	Wm. Steel.....	2	

MINES VISITED IN STARK COUNTY.

NUTWOOD

Is located in Sugar Creek township, on the Cleveland, Lorain and Wheeling railway, and is operated by the Nutwood Coal Co. I visited this mine on January 18 and found it in good condition. They had a great deal of water to contend with. I advised them to drive a place at the bottom of the shaft and not have the men come over the cages from one side of the mine to the other. I ordered a door erected to turn the air into a new butt entry. There were 10 miners and two day men were employed. The mine is ventilated by exhaust steam. William Penman is superintendent and Ed. Jones is mine boss. This is a shaft opening, 150 feet in depth.

ELM RUN NO. 3

Is a shaft 150 feet in depth, and is located near the village of Elm Run on the Cleveland, Lorain and Wheeling railway. J. A. W. Jones is superintendent and William Penman is mine boss. This mine opened last fall. I visited it on January 18 and found it in good order. They are preparing to put down a shaft for an alternate way, which was ordered by District Inspector Jones on his visit. The butt entries have run into a fault, and they are now drilling test holes to find the best place to go through. Eighty-five and 18 day men were employed. This mine is ventilated by exhaust steam.

ELM RUN NO 2

Is located near the No. 3 opening, and was visited on the same date as that mine. It was abandoned in two weeks and all material was removed to No. 3. It is managed by the same parties. Forty miners and 10 day men were employed. This mine is ventilated by exhaust steam.

WARWICK

Is a shaft 205 feet in depth, and is located near West Brookfield. E. E. Fox is superintendent and George Swier is mine boss. I visited this mine on January 14 and found it in good order. I ordered some break-throughs cleared out that were obstructed. This is a large mine with a very good seam of coal. One hundred and sixty miners and 37 day men were employed.

UPPER PIGEON RUN

Is a shaft, situated near West Brookfield. E. E. Fox is superintendent and F. J. Keller is mine boss. I inspected it on January 14, and it was found in fair condition. This mine is greatly cut up with faults and they have a great deal of water to contend with. The air course is badly obstructed, but they are driving an entry double shift to overcome this difficulty. It will be completed within a week. One hundred miners and 25 day men were employed.

REPORT OF JAMES P. DAVIS,

Inspector of the Fifth District, from February 15, 1898, to November 15, 1898.

HON. R. M. HASELTINE, Chief Inspector of Mines:

SIR: I herewith respectfully submit to you a report of the mines of the Fifth District, from the time of my appointment, on February 15, 1898, to the close of the fiscal year, November 15, 1898.

The time embraced in this report has not been of sufficient length for me to familiarize myself with all the mines in the district. Some of them require the attention of the inspector more frequently than others and quite a number are of the domestic class. These do not begin operations until about the close of the inspection year, hence my report of them is not as complete as it would have been had it covered the calendar year.

With few exceptions the mines of this district are in good condition, and the managers evince a desire to obey the laws governing their duties, consequently a mere suggestion on my part has often been the means of securing improvements which have bettered the sanitary condition of the mines and increased the safety of the miners employed.

But one fatal accident occurred during this period. This was in the Markle coal mine in Jefferson county, where on March 30, 1898 John W. Hanna was instantly killed by a fall of rock.

I desire to take this opportunity to thank my predecessor for many favors received, also to acknowledge your prompt advice and assistance.

Below you will find a report of the different mines, their location and condition.

Respectfully submitted,

JAMES P. DAVIS,
Inspector Fifth District.

Dell Roy, Ohio, November 15, 1898.



JAMES P. DAVIS,
INSPECTOR FIFTH DISTRICT, DELL ROY, OHIO.

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ASTOR, LENOX AND
TILDEN FOUNDATIONS.

CARROLL COUNTY.

ELDER

Is located two miles east of Dell Roy, on the Cleveland, Canton and Southern railway, and is owned by Jones & Owens of Canton. It is a drift opening, to the No. 7 seam of coal. The mine is nearly exhausted and will be abandoned in the near future. John Reese is superintendent and mine boss. Twenty miners and five day hands were employed. This mine is ventilated by a furnace and is in fair condition.

SCOTTS

Is located three miles east of Dell Roy, on the Cleveland, Canton and Southern railway, and is owned by the Mardy Coal and Mining Company of East Liverpool. W. E. Bolton is superintendent, and C. W. Lewis is mine boss. The opening is a drift, to the No. 7 seam of coal. The mine is worked on the double entry system, and is ventilated by a furnace. On June 30, 1898, 31 miners and seven day hands were employed, but at the close of the year only six miners and one day hand were engaged. The decrease in the number of men employed is due to faults and irregularities in the coal. The life of this mine depends entirely upon the development of new territory.

SOMERS NO. 5

Is situated one and one-half miles east of Sherrods ville, on a branch of the Wheeling and Lake Erie railway, and is owned by J. H. Somers & Co. of Cleveland. Wm. Maloney is superintendent and mine boss. The opening is a drift, to the No. 7 seam of coal. The mine is worked on the double entry system, and is ventilated by a fan which gives general satisfaction. The coal is mined by electric power, and the Jeffrey mining machines are used to cut it, and a motor hauls it to the chutes. I inspected this mine on August 16, at which time there were 112 miners and 31 day men employed. Three visits were made during the year and on each occasion the mine was found in good condition.

DAVIS NO. 3.

This mine is located on a branch of the Wheeling and Lake Erie railway, one mile east of Sherrods ville. It was formerly owned by the Fuller Coal Company of Toledo, but was purchased by R. H.

Wainwright of Massillon, about January, 1898. The mine had been idle since November, 1896, Mr. Wainwright began operating it about March 1, 1898. Frank McIntosh is superintendent, and Richard Jones is mine boss. The opening is a drift, to the No. 7 seam of coal. The mine is worked on the double entry system, and is ventilated by furnace. The coal is hauled to the chutes by an endless rope. About 50 miners and 12 day hands were employed.

STARKEY

Is situated one mile west of Minerva, on the Tuscarawas branch of the Cleveland and Pittsburg railway. It was formerly owned by John Starkey of Minerva, but it is now the property of the Minerva Coal and Coke Company of that place. This is a slope opening, to the No. 6 seam of coal which is two feet, eight inches in thickness at that point. The single entry system of working is used, and furnace ventilation is employed. Twelve miners and four day hands were engaged here.

HUSTON

Is located one and one-half miles west of Carrollton, and is owned by Huston & Fawcett of that place. It is leased to F. P. Moody who is manager. The opening is a drift, to the No. 7 seam of coal. The mine is of the domestic class, has natural ventilation, and employs about 10 men.

LINDEN NO. 1

Is located on a branch of the Valley railway, three miles east of Mineral Point, and is owned by the Davis Railway Coal Company of Canton. W. L. Davis is superintendent, and John J. Evans is mine boss. This is a drift opening, to the No. 5 seam of coal which varies in thickness from two feet six inches, to four feet. The double entry system is employed at this mine, which is ventilated by a furnace. This system of ventilating has been very unsatisfactory and the management has agreed to sink a new air shaft. This has not yet been completed. About 35 miners and seven day men are usually employed here.

LINDEN NO. 2.

This mine is situated directly over the workings of Linden No. 1 and it is owned and operated by the same company. The opening is a drift, to the No. 6 seam of coal. The territory was thought to be exhausted, so the mine was abandoned about June 15, 1898.

LINDEN NO. 5

Is located near the No. 1 and No. 2 openings, and is owned and operated by the same company. This is a drift, to the No. 6 seam of coal which is here about four feet in thickness. The mine is worked on the double entry system, and uses a furnace as a means of ventilation. The coal is lowered over an incline plane and from there hauled to the chutes. A new furnace has been erected at this mine which has greatly improved the ventilation. About 40 miners and 10 day hands were employed.

LINDEN NO. 6.

This is a new drift opening, to the No. 6 seam of coal. It is located near Linden Nos. 1, 2, and 5, and is owned and operated by the same company.

MINES EMPLOYING LESS THAN TEN MEN.

Name of mine.	Kind of opening.	Name of owner or operator.	No. of miners.	P. O. address.
Beatty.....	Drift	Beatty Fire Clay Co	6	Magnolia
Ebersole.....	"	John E. Ebersole.	4	Carrollton
Cellars.....	Slope	E. Cellars	3	"
Pearch.....	Drift	Conrad Pearch	2	Sherrods-ville
Justus.....	"	V. Justus	2	"
Sharp.....	"	Samuel Sharp	2	"
Richardson.....	"	A. Richardson.	2	"
Allen.....	"	S. Scott.	1	Algonquin
Bakers.....	"	S. B. Baker.	2	N. Hagerst'n
Ball.....	"	Henry Ball	3	Leesville
Preston.....	"	H. E. Preston	2	"

CLAY MINES OF CARROLL COUNTY.

MALVERN NO. 1

Is situated at Malvern, and is owned by the Malvern Fire Clay Company. John Gantz is manager and mine foreman. This is a drift opening, and is ventilated by a furnace. It has furnished steady employment for about 12 miners during the year.

MINES EMPLOYING LESS THAN TEN MEN.

Name of mine.	Kind of opening.	Name of owner or operator.	Number of miners.	P. O. address.
Minerva	Drift	Minerva Clay Co.	5	Minerva
Sandy Valley	"	Canton & Malvern Fire Clay Co.	9	Malvern
Beatty	"	Beatty Fire Clay Co.	2	Magnolia

COLUMBIANA COUNTY.

NEW SHAFT.

This mine is located in the town of Salineville, and is owned by the Big Vein Coal Company of Cleveland. Samuel Madison is superintendent, and John Gallagher is mine boss. The opening is a shaft 40 feet to the No. 7 seam of coal which here is five and one-half feet in thickness and of excellent quality. On September 1, the mine was shut down for repairs. A new tippie was erected and the mine put in first-class condition. It resumed operations about October 1. The coal is mined by the Morgan-Gardner and Jeffrey electric machines. It is hauled to the bottom of the shaft and is hoisted by steam power. The mine is worked on the double entry system. The Clark fan is used as a means of ventilation and it furnishes an abundant supply of air. Great care and expense are necessary to avoid accidents on account of the generating of fire damp. There is, however, not as much of it to contend with as there has been in the past. About 110 miners and 50 day men were employed.

SLOPE

Is located at Salineville, on the line of the Cleveland and Pittsburgh railway, and is owned by the Ohio and Pennsylvania Coal Company of Cleveland. James Black is the superintendent and John White is mine boss. The opening is a slope to the No. 7 vein, which ranges from four to six feet in thickness. This mine is worked on the double entry system, and is ventilated by a fan. The coal is mined by electric power, Jeffrey and Morgan-Gardner machines being used.

to cut it. A six-ton motor is used to haul the coal to the double parting, and from there to the chutes a tail rope is employed. This mine was flooded during the month of March, and it was consequently suspended for about six weeks. A new fan was erected in April. This is run by electricity and gives entire satisfaction. I am glad to report that at the close of the year the sanitary condition of the mine was greatly improved over former years. One hundred and forty miners and 38 day hands were employed.

CEDAR HILL

Is situated one and one-half miles east of Salineville, on the main line of the Cleveland and Pittsburg railway. J. H. Strabley is the owner and Daniel Tolson is mine boss. The opening is a drift to the No. 7 seam of coal, which is about three feet in thickness at this point. This mine is worked on the single entry system, and is ventilated by a furnace. My first visit was on March 30, when I found the mine in bad condition, but it has since been greatly improved by the driving of an air course to the outside. About 25 miners and three day hands were employed.

HAYS

Is located in the town of Salineville, on a branch of the Cleveland and Pittsburg railway. It is owned and managed by J. H. Strabley, of Salineville. The opening is a drift to the No. 7 seam of coal and natural ventilation is employed. The solid coal is supposed to be exhausted, and from 10 to 12 men find employment drawing the pillars.

HEATHERINGTON.

This is a new mine, and is located on a branch of the Cleveland and Pittsburg railway. It is owned by Heatherington Bros. Richard Heatherington is superintendent and mine boss. The opening is a drift to the "Strip Vein" of coal, which is here seven feet in thickness. This mine is worked on the double entry system, and uses furnace ventilation. It is in first-class condition, and employed about 35 miners and six day hands.

CLAY MINES IN COLUMBIANA COUNTY.

Name of mine.	Kind of opening.	Name of owner or operator.	No. of miners.	P. O. address
K. T. & A.	Slope	Kno'les, T'ylor & Ander'n	6	E. Liverpool
Walkers No. 1.	Drift	Walker Fire Clay Co.	5	Walkers
Walkers No. 2.	"	" " " " " " " " " " " "	4	"
Lythe No. 1.	"	John Lythe & Son.	4	Wellsville
Lythe No. 2.	Shaft	" " " " " " " " " " " "	6	"
Vulcan.	Drift	Vulcan Fire Clay Co.	7	"
Buckeye.	"	Buckeye Fire Clay Co.	8	"

HARRISON COUNTY.

MESSENGER.

This mine is located at Bowerstown, on the main line of the Pittsburgh, Cincinnati, Chicago and St. Louis railway, and was formerly owned by the Messenger Coal Company, of Massillon. It is now owned and operated by the East Massillon Coal Company, the same place. John Kellar is superintendent and J. H. Simons mine boss. This is a drift opening, worked on the double entry system, and a furnace is used as a means of ventilation. From 15 to 20 miners and four day men were employed. This mine has been idle most of the year.

The following is a list of mines employing less than 10 men, which were visited by me during the year:

Name of mine.	Kind of opening.	Name of owner or operator.	No. of miners.	P. O. address.
Patton	Drift	Samuel Patton	5	Bowerston
Czatt	"	G. W. Czatt	4	Tappan
Hogland	"	I. Hogland	3	"
Copeland	"	Wm. Blackwell	3	"
Ramsey	"	F. Ramsey	2	Marville
Rogers	"	C. Rogers	1	"
Tipton	"	A. Tipton	1	Hattonia
Keesey	"	John Keesey	2	Moraville
Martins	"	Martin Bros.	1	Cadiz
Patterson	"	J. H. Patterson	2	"
Campbell	"	J. W. Campbell	2	"
Hedges	"	Wm. Hedges	2	"
Clemens	"	S. C. Clemens	1	"
Long	"	Robert Long	1	"
Rife	"	J. W. Rife	1	"
Moorehead	"	L. A. Moorehead	1	"
Cochran	"	R. R. Cochran	4	"
Farr	Shaft	John Farr	1	"
Hedges No. 2	Drift	Ross Hedges	4	"
Irons	"	Shork & Ross	6	Tippecanoe
Stephen	"	Frank Stephen	2	"
Foutz	"	Joseph Foutz	5	"
Evans	Shaft	A. J. Evans	2	Freeport
Stewarts	Drift	James Sweaney	3	"
Hess	Slope	D. F. Hess	3	"
Weyandt	Drift	A. Weyandt	3	Bowerstown
McKane	"	James McKane	1	"
Stebbons	"	Jos. Melandsboro	2	Station 15
Snyder	"	Elizabeth Snyder	1	Greeno
Mattern	"	Wesley Mattern	1	Folks
Hanna	"	Wm. Hanna	1	"
Lease	"	Addison Lease	1	Means
Leggett	"	Theo. Leggett	2	Hopedale
Skelley	"	James Skelley	1	"
Welch	"	B. D. Welch	2	Cadiz
Copeland No. 2	"	J. Copeland	3	Greeno
Copeland No. 3	"	Henry Copeland	2	Folks

JEFFERSON COUNTY.

LONG RUN NOS. 1 AND 2.

These mines are located in Mt. Pleasant township, on a branch of the Wheeling and Lake Erie railway. They are owned by the Wheeling, Lake Erie and Pittsburg Coal Company. J. J. Roby is superintendent and William Fitzgerald, mine boss. They are drift

openings, worked on the double entry system, and are ventilated by fans. This is the No. 8 seam of coal, which is mined by the Jeffrey machines. A new 15-ton motor is used to haul the coal to the incline. The solid coal in the No. 2 mine is almost exhausted, hence the principal work here will be drawing of pillars. The draw slate which overlies this vein of coal is very dangerous and special care is required to avoid accidents, although no fatalities have occurred during this year. Three hundred and fifty miners and 35 day hands were employed here.

DILLON NOS. 1, 2, AND 3

Are situated at Dillonvale, on the main line of the Wheeling and Lake Erie railway, and are owned by the Wheeling, Lake Erie and Pittsburg Coal Company, with J. J. Roby as superintendent, and William Fitzgerald mine boss. These are drift openings, to the No. 8 or Pittsburg seam of coal which is here about four feet eight inches in thickness. The mines are worked on the double entry system, and are ventilated by a 15-foot Brazil fan which gives entire satisfaction. The draw slate overlying this coal is the same as that at the Long Run mines, and here also special care is required to avoid casualties. A new electric plant has been installed during the year. The coal is cut by Jeffrey mining machines and hauled to the top of the incline with a 15-ton motor. During the first part of August, a squeeze came on in the No. 1 opening of this mine which caused considerable trouble and expense to the mine owners. It closed in the seventh, eighth, ninth and tenth left entries, causing heavy falls on the main haulway and almost closing the main air course. Between 300 and 400 yards of entry had to be driven before proper ventilation could be had. This required a considerable length of time and the mine was not in especially good condition while the work was being done. Four hundred miners and 85 day men found employment here.

KELLEY NO. 2

Is located at Warrenton, on the main line of the Cleveland and Pittsburg railway. It is owned by the Kelly Coal Company, with E. J. Lewis as superintendent, and William Nixon mine boss. This is a drift opening, to the No. 8 seam of coal. The mine is worked on the double entry system, and employs furnace ventilation. A new electric plant was installed during the year, and Morgan-Gardner machines are used to cut the coal. This mine was idle during the first part of the year owing to a strike of the miners against the company.

store. The trouble was adjusted about June 22. Since then this mine has run nearly full time. It employed 35 miners and 10 day hands.

M'FADYEN

Is situated near Miller's Station, on the main line of the Pittsburg, Cincinnati, Chicago and St. Louis railway. It is owned by the McFadyen Coal Company, with I. B. Talbot as superintendent, and John McLane mine boss. The opening is a drift, to the No. 8 seam of coal which is here about four feet six inches in thickness. It is worked on the double entry system, and is ventilated by a fan. The mine is located three miles from the railroad and the coal is hauled by a 12 ton steam locomotive to the chutes where it is used exclusively for coaling engines on the Pittsburg, Cincinnati, Chicago and St. Louis railway. This gives 35 or 40 miners and 12 day hands steady employment.

HIGH SHAFT

Is located in the city of Steubenville, and is owned by the Steubenville Coal and Mining Company. William Smurthwaite is manager and superintendent, and George Arthur is mine boss. The opening is a shaft, 280 feet in depth to the No. 7 seam of coal which varies from three feet six inches to three feet 10 inches in thickness at this point. This mine is worked on the "County of Durham" system, and is ventilated by one large and one small fan. It has been in operation about 42 years and at one time furnished employment to a large number of men. Recently their coal trade has been confined to the city alone where it is used for domestic purposes. The mine is kept in very good condition, and employed about 50 miners and 45 day hands during the year just closed.

BERGHOLZ

Is located at Bergholz, the terminus of the Ohio River and Lake Erie railway. It is owned by the Union Coal and Coke Company, with K. V. Murray as superintendent, and James W. Hipple mine boss. This is a drift opening, to what is known as the "Strip Vein," and is worked on the single entry system. The seam of coal is about 2½ feet in thickness. On June 2, 31 miners and six day men were employed. On June 15, one of the boilers gave way and the mine has been idle since.

NEW SLOPE

Is situated at Bergholz, and is owned by Thomas E. George. J. Kirk is superintendent, and Richard Hanson is mine boss. This slope opening, to the "Strip Vein," and it is worked on the single entry system. About 17 miners and four day hands are usually employed.

COOPERATIVE.

This mine is located two miles north of Bergholz, on the line of the Ohio River and Lake Erie railway. It is owned by the Ruth Coal Company, with E. E. Hicks as superintendent, and Wm. Baas as mine boss. This is a drift opening, to the "Strip Vein" seam of coal which is about three feet in thickness at this point. The mine is worked on the single entry system, and employs furnace ventilation. On March 2, nine miners and two day hands were engaged. This mine has been idle since May.

ROLLING MILL NO. 2

Is situated at Irondale, and is owned by Wallace, Banfield & Company, with Isaac Thomas as manager. The opening is a drift, to the No. 7 seam of coal which varies from four to six feet in thickness. The double entry system of working and furnace ventilation are used. The entire output of this mine is consumed by the Rolling Mills, owned by Wallace, Banfield & Company. Twenty-five miners and eight day hands are furnished steady employment here.

DIAMOND NO. 2.

This mine is located one mile east of Hammondsville, on the main line of the Cleveland and Pittsburg railway, and is owned by Smith & McCully of Wellsville. Henry Welch is the manager. This is a drift opening, to the No. 7 vein of coal which is from four to six feet in thickness. Furnace ventilation is used. The solid coal in this mine is almost exhausted, and 27 miners and five day men are employed here.

TAYLOR

Is situated at Bergholz, on the Ohio River and Lake Erie railway. It is owned by W. A. Taylor & Son, with W. A. Taylor as manager. The opening is a drift to the "Strip Vein," which is here about 12 feet and 10 inches in thickness. This mine is worked on the single

entry system, and has natural ventilation. It has only been operated a short time. From six to nine miners were employed during the year.

WILSON

Is located at Oak Hill, three miles southwest of Steubenville, and is owned and managed by Henry Wilson. The opening is a drift to the No. 8 seam of coal. It is worked on the double entry system, and employs furnace ventilation. The coal is teamed to Steubenville, and is used there for domestic purposes. During the winter season from 12 to 15 miners and four day hands were employed.

GREAT WESTERN

Is located at Toronto, and is owned by the Great Western Fire Clay Company. R. M. Francey is superintendent and James Duke is mine boss. This opening is a drift to what is known as the "Roger Vein," which is about two feet and four inches in thickness at this point. This mine is worked on the single entry plan, and uses furnace ventilation. The entire output of this mine is consumed at the Clay Works. Twenty-five miners find steady employment here.

CALUMET

Is situated at Calumet, and is owned by the Calumet Fire Clay Company, with Samuel McAdoo as superintendent and John Wynn is mine boss. The opening is a drift to the "Roger Vein." The single entry system of working and furnace ventilation are employed. For the purpose of better ventilation an entry is being driven through the hill. The entire output of this mine is used at the Sewer Pipe Works for burning clay ware in kilns. Ten miners and two day hands are usually employed here.

The following is a list of mines, which employ less than 10 men visited during the year :

Name of mine.	Kind of opening.	Name of owner or operator.	No. of miners.	P. O. address.
Hill	Drift.	R. S. Hill	1	Steubenville
Wilson	"	Wm. Wilson	2	"
Bates	"	John Bates	5	"
England	"	McFarland & Permar	6	"
Owens	"	B. F. Owens	5	"
Tweed	"	J. D. Tweed & Son	6	"
High Vein	"	John Householder	1	Irondale
Excelsior	"	Pat Connor	5	Calumet
Hill Top	"	Calumet Fire Clay Co	6	Toronto
Ohio Valley	"	Ohio Valley Fire Clay Co	8	"
Nicholson	"	John Nicholson & Son	2	Dillonvale
Wesley	"	Charles Wesley	3	Mingo
Hill	"	John Curfman	2	"
Markle	"	Kennedy, Kling & Co	8	Toronto
Connor	"	Excelsior F. C. Co	6	Calumet
Cable Shaft	Shaft	John Manten	4	Wintersville
Finley	Drift	W. F. Morlan	6	Costonia
Ball	"	J. F. Ball	2	Calumet

CLAY MINES IN JEFFERSON COUNTY.

CALUMET

Is located at Calumet, and is owned by the Calumet Fire Clay Company. Samuel McAdoo is superintendent and John Wynn is mine boss. The opening is a shaft about 25 feet in depth to the clay which is here about eight feet in thickness. This mine is ventilated by steam exhaust, which gives entire satisfaction. Three visits were made to this mine during the year, when seven miners and three day hands were employed.

GREAT WESTERN.

This mine is situated at Toronto, on the river division of the Cleveland and Pittsburg railway. It is owned by the Great Western Fire Clay Company. R. M. Francey is superintendent and Dan Hinkle is mine boss. This mine is ventilated through the Fort City mine, which is not altogether satisfactory. I have suggested that a fan be erected to which the management has consented. Eleven miners and four day hands were employed.

FOREST CITY

Is located at Toronto, and is owned by the Forest City Clay Company. D. W. Francey is superintendent and James Milne is mine boss. The opening is a slope, and is connected with the Great Western mine for ventilation. The fan, which is in course of construction at the Great Western, will ventilate this mine also. About eight miners and four day hands find steady employment here.

The following is a list of clay mines in Jefferson county employing less than 10 men :

Name of mine.	Kind of opening.	Name of owner or operator.	No. of miners.	P. O. address.
Lacy	Slope	Adolph Pritchard	3	Irondale
Wallace	Drift	W. Va. Fire Clay Co.	3	"
Markle	Shaft	Kennedy, Kling & Co.	9	Toronto
Connor	Drift	Patrick Connor	7	"
Ohio Valley	Shaft	Ohio Valley F. C. Co.	9	"
Empire	"	Empire Fire Clay Co.	7	Empire
None Such	"	Stratton Bros	8	"
Enterprise	Drift	Miners F. C. Co.	7	"
Freeman	"	This mine has been idle since		July, 1897
Giant	Shaft	Toronto Fire Clay Co.	6	Toronto
Hartford	"	This mine has been idle since		September, 1897

REPORT OF WM. K. MOORE,

Inspector of the Sixth District, from January 17 to November 15, 1898.

HON. R. M. HASELTINE, Chief Inspector of Mines:

DEAR SIR: I herewith respectfully submit my first annual report of the mines in the Sixth District during the period from January 17, the date of my appointment, to the end of the inspection year, November 15, 1898.

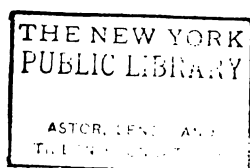
During my brief connection with the department I have been able to do but little more than become familiar with the duties of the office and to acquaint myself with the mines in the district, the location and the most convenient route for visiting them. During this period there have been no strikes or lockouts, but the eastern part of Ohio, especially the Massillon district, has been severely crippled by reason of the competition of the West Virginia coal. This has been one of the poorest years that the miners of the Sixth District have ever had, and this at a time when they were supposed to be working, made it almost impossible for the inspector to find them in operation. About the only industry that can be said to be languishing is the coal trade of eastern Ohio, which is severely crippled. In fact it is threatened with absolute ruin by reason of the competition of the West Virginia coal fields, whose operators can mine coal at one-third the price of their rivals in Ohio. Their output will amount to over 13,000,000 tons, most of which was supplied to northern trade heretofore supplied by Ohio miners.

In the three counties comprising this district 170 visits have been made for the purpose of making examinations of the condition of mines, investigating causes of fatalities and examining and testing the scales.

At the Twin City mine, Tuscarawas county, on January 2 Chas. Mathue was killed by a fall of rock. At Midvale No. 2 mine in the same county, Frederick Meyers was killed on May 15 by a large fall of rock at the face of his room. At Krause No. 5 mine, Stark, on November 14, Aaron Cline was caught by a fall of coal and died on November 15. At Minglewood No. 2 mine, in Sta. county on February 4, Wm. Lester was injured by a fall of slate which caused his death on February 10, and at the Warwick mi-



WM. K. MOORE,
INSPECTOR SIXTH DISTRICT, NORTH LAWRENCE, OHIO.



in the same county on February 18, Joseph Greutter was found dead in the mine. The evidence at the coroner's inquest showed that he had had organic heart disease for some time prior to his death.

The permanent improvements made in the district are as follows: Three fans erected; 12 air shafts sunk; nine furnaces erected; four stairways built; four sets of safety catches put in; and two fire baskets hung. Two mines were suspended, six abandoned and 10 new ones were opened up.

It gives me great pleasure to report the harmonious relations existing between the operators and miners of my district and myself. I also return my thanks to you as chief of the department for your uniform courtesy and discreet advice. I am,

Very respectfully,

WM. K. MOORE,
Inspector Sixth District,

North Lawrence, Ohio, November 15, 1898.

STARK COUNTY.

MINGLEWOOD SLOPE

Is situated in Lawrence township, on the Pittsburg, Ft. Wayne and Chicago and the Wheeling and Lake Erie railways, and is owned and operated by James Mullins of Wooster. Wm. Baumgardner is superintendent and John Ryan is mine boss. This is a slope mine, worked on the double entry system, and a fan is used as a means of ventilation. This mine is opened into the No. 1 or Massillon seam of coal, which is here $4\frac{1}{2}$ feet in thickness. Sixty-two miners and 38 day hands were employed. This is one of the oldest and most extensive mines in my district, which makes it very hard to ventilate. The fan being situated too near the slope, places it at a disadvantage. I think that better results could be obtained by placing the fan at Minglewood shaft No. 1, now used as the inlet, and using the slope for the inlet, as the friction would not then be so great. In spite of the many times that the day men at this mine have been warned by the inspectors not to enter the mine before it had been examined by the fire boss, on the 15th of March W. Baumgardner, superintendent, John Ryan, mine boss, and three men, on a day when the mine was not working, went in with the intention of cleaning up a part of the mine that had been suspended for some time. Knowing before they went in that this part of the mine before it was suspended generated

various quantities of light carburetted hydrogen gas, or fire dan the result was that two of the day men and the mine boss were severely burned. I am told that some of the day men still continue to enter this mine on idle days without examining the place of work. Five visits were made to this mine during my term.

MINGLEWOOD SHAFT NO. 1

Is located near the slope and is on the same railroads. It is operated and managed by the same parties, this shaft being used as an inlet for the slope. The drawing of pillars has been suspended for some time, as the slope can be ventilated without it.

MINGLEWOOD NO. 2

Is situated at North Lawrence, on the same railroads as is the Slope and it is operated and managed by the same parties. This mine is a shaft, 28 feet in depth, worked on the double entry system, and an exhaust steam is used as a ventilating power. It is opened into the No. 1 or Massillon seam of coal, which is here four feet in thickness. Eleven miners and five day men were employed. Since my first visit the mine has been suspended.

MINGLEWOOD NO. 3

Is located in Tuscarawas township, and is on the same railroads as the other mines. William Baumgardner is superintendent and William Moffett is mine boss. This is a new shaft, 208 feet in depth, into the No. 1 seam of coal, which is here four and one-half feet in thickness. One hundred and fifty-two miners and 30 day men were employed. On my last visit to this mine I noticed that the men, in their hurry to get up, paid little attention to section 300 of the Mining Laws, which says that "in no case shall more than 10 men ride on any cage or car at one time." I called their attention to this violation. The sinking of an air shaft and the removing of the pillars to the same makes this one of the best ventilated mines in my district. Three visits were made to it, and I tested the scales twice.

CLOVER HILL

Is located in Lawrence township, on a branch of the Cleveland, Akron and Columbus railway, and is owned by the Fox Lake Coal Company. John Featherstone is superintendent and mine boss. This is a shaft, 170 feet in depth. Steam exhaust and a fan are used

the means of ventilation. Fifty-two miners and 15 day hands were employed. An air shaft and an escapement way were the improvements made during the year. I visited this mine three times and tested the scales.

ROSE HILL NO. 1

Is located near the village of Justus, in Sugar Creek township, on the Cleveland, Canton and Southern railway, and it is owned by the Howells Mining Company. E. J. Evans is superintendent and J. H. Zeiger is mine boss. This is a drift opening, worked on the single entry system. It is opened into the No. 3 seam of coal, which is here from two and one-half to three feet in thickness. Fifteen miners and two day hands were employed here. On my first visit I gave them 10 days in which to improve the ventilation, and upon my return found that the mine had been abandoned.

NEW GREENVILLE

Is situated near East Greenville, on the Wheeling and Lake Erie railway, and is owned by the Howells Mining Company. W. James is superintendent and M. English is mine boss. This is a new shaft, 261 feet in depth, worked on the double entry system, and a fan is used as a means of ventilation. It is opened into the No. 1 seam of coal, which is here five feet in thickness. Seventy miners and 14 day hands were employed. This is one of the best equipped mines of the district, all of the buildings being fire proof. On February 21 a miner was severely burned while brushing gas in the No. 1 west entry. On the following day I examined the mine and found no signs of gas, the feeder being exhausted. Fearing that they might strike another, I ordered that the air be bratticed up to the face of the entry and ordered the miners not to brush gas. The brattice was put up, but on February 25 another miner was burned in this same entry. He claimed that the gas ignited by a spark from his pick, but I think that both casualties were caused by carelessness on the part of the miner, as the mine boss used every precaution to prevent accidents. On each of my four visits I found this mine well ventilated and being conducted in a skillful manner.

CAMP CREEK

Is situated on the Cleveland, Lorain and Wheeling railway, and is owned by the O. Young Coal Company. Joseph Collier is superintendent and mine boss. This is a shaft opening into the Massillon

seam of coal, which here presents the peculiar character cannel and bituminous coal. It is 150 feet in depth, an exhaust is used as a ventilating power. There being not pillar work, the ventilation was not so very good. They are a rock entry for a new basin of coal. This mine is located village of Justus.

NUTWOOD

Is a shaft opening, situated on the Cleveland, Lorain and V railway, near the village of Elton. W. Penman is superin and Edward Penman is mine boss. This is a shaft, 150 feet i worked on the double entry system, and ventilated by exhaust. Sixty-five miners and 19 day men were employed. On my f to this mine, I discovered that there was no manway around and no ladders in the air shaft or escapement way. I found n complied with when I next visited the mine. I tested the s found them weighing accurately.

ELM RUN NO. 3

Is situated on the Cleveland, Canton and Southern, and th land, Lorain and Wheeling railways, near the village of Eltc is a shaft, 150 feet in depth, opened into the No. 1 seam of co is here five feet in thickness. It is owned and operated by Run Coal Company, with James Wilson as superintendent, Penman as mine boss. One hundred and three miners an hands were employed. A new air shaft was sunk, and a far during the year.

ELM RUN NO. 4.

This is a new shaft opening, 212 feet in depth situate same railroads as is the No. 3 mine. It is owned and operate same parties. Exhaust steam is used as a means of ventilat my last visit to this mine, work had been suspended awai completion of the railway and outside buildings.

WEST MASSILLON NO. 3

Is located near North Lawrence, on the Pittsburg, Ft. Wa Chicago railway, and is owned and operated by the E. G. Kra Company of Cleveland. C. R. Cline has entire supervision. a shaft opening, 40 feet in depth into the No. 1 seam of coal here five feet in thickness. It is worked on the double entry

and is ventilated by a fan. Eighty-five miners and 23 day men were employed. During the year a new tail rope haulage was put in by the Robinson Machine Company. I visited this mine four times, and tested the scales.

STANWOOD NO. 4.

This is a new shaft opening, 200 feet in depth, opened into the Massillon seam of coal which is here six feet in thickness. This mine is located near Stanwood, on the Cleveland, Lorain and Wheeling railway, and is operated by the E. G. Krause Coal Company, with Henry Leahy as superintendent, and Peter Ries as mine boss. Thirty miners and 14 day men were employed. During the year new safety catches were placed, an air shaft was sunk and a new fan erected. I visited this mine three times, and tested the scales twice.

KRAUSE NO. 5.

This is a new shaft opening, 97 feet in depth, situated near the village of Pigeon Run, on the Cleveland, Canton and Southern railway. It is owned by the E. G. Krause Coal Company, and Henry Leahy has entire supervision. This mine is opened into the No. 1 or Massillon seam of coal which is five feet in thickness at this point. It is worked on the double entry system, and steam exhaust is used as a means of ventilation. Forty miners and 12 day men were employed. I visited this mine three times, and tested the scales twice, finding them correct in each instance.

WOODLAND

Is a shaft, 250 feet in depth situated near East Greenville, on the Cleveland, Lorain and Wheeling railway. It is owned by the Wainwright Coal Company, with B. R. Jones as superintendent and mine boss. It is opened into the Massillon seam of coal which at this point is five feet in thickness. It is worked on the double and single entry systems, and steam exhaust and a fan are used as a means of ventilation. Sixty-six miners and 14 day men were employed. The machines which were placed in this mine some time ago have been taken out as they have proven a failure, and the self-dumping cages have been changed. On my first visit, I discovered the safety catches out of order. I stopped the mine at three-fourth day and had them repaired so that operations could be resumed the following day. On my last visit to this mine, I found it in unsatisfactory condition generally.

NORTH MASSILLON NO. 2.

This is a new shaft, 150 feet in depth, located on the Cleveland Lorain and Wheeling, and the Pittsburg, Ft. Wayne and Chicago railways, in Jackson township. It is owned by the Burton Railway Company, with John Hodgen as superintendent and mine boss. It opened into the Massillon seam of coal which is $4\frac{1}{2}$ feet in thickness at this point. It is worked on the double entry system, and exhaust steam is used as a means of ventilation. Twenty-five miners and 1 day men were employed. The ventilation here has been very unsatisfactory both to the Coal Company and to the department, owing to the fact that the air shaft has been obstructed by pumps, having had a large amount of water to contend with. On my last visit they had just completed a new air shaft 153 feet in depth, and they were arranging to put in a fan at once. I tested the scales and found them weighing correctly.

HERNBROOK

This is a shaft opening, 150 feet in depth, located in Lawren township, on a branch of the Pittsburg, Ft. Wayne and Chicago railway. It is owned and operated by Ridgeway, Burton & Company. W. Crookston has entire supervision. It is worked on the double entry system and a fan is used as a means of ventilation. It penetrates the Massillon seam of coal which is here about four feet in thickness. Having only pillar work, this mine will soon be exhausted. Fifty miners and 20 day men were employed. I found the general condition of this mine unsatisfactory. I tested the scales and found them weighing accurately.

WILLOW SPRING

Is located near North Industry, on the Valley railway. John Loo is superintendent and Alex Lindsey is mine boss. This is a drift opening, worked on the double entry system, and has natural ventilation. It penetrates the No. 6 seam of coal, which is here four feet in thickness. On my last visit but three miners were at work and they were drawing pillars.

FAILOR

Is located near North Industry, on the same railroad, and is operated and managed by the same parties as is the Willow Spring mine. It is a drift opening into the No. 6 seam of coal. It is worked on the double entry system, and has furnace ventilation. Thirty-th

miners and 12 day men were employed. I was obliged to stop the firing at noon, as it was injurious to the ventilation.

YOUNGS SHAFT

Is located at East Greenville, on the Wheeling and Lake Erie railway, and is owned by the Pocock Coal Company. C. A. Kouth is superintendent and mine boss. This is a shaft opening, 248 feet in depth, worked on the double entry system, and ventilated by a fan. One hundred and twenty miners and 26 day men were employed. This mine penetrates the Massillon seam of coal, which is five feet in thickness at this point. Various quantities of fire damp have been found in this mine, but by good management accidents have been avoided. I tested the scales here twice and on each occasion found them correct.

MILLPORT NO. 1

Is located in Jackson township. Charles Brenkamp is superintendent and L. Brenkamp is mine boss. It is a shaft opened into the Massillon seam of coal. Sixty miners and 20 day men were employed drawing pillars on my first visit, but since then the mine has been abandoned.

EUREKA

This mine is located on the Cleveland, Lorain and Wheeling and the Pittsburg, Ft. Wayne and Chicago railways in Lawrence township. It is a new shaft opening, 100 feet in depth, penetrating the Massillon seam of coal, which is four feet in thickness at this point. It is owned by the Massillon and Cleveland Coal Company, Lewis Brenkamp having entire supervision. It is worked on the double entry system, and exhaust steam is used as a ventilating power. The air being split at the bottom of the shaft gives very satisfactory results. Ten miners and six day men were employed.

WEST BROOKFIELD.

This is a new shaft opening, located in the village of West Brookfield, on the Wheeling and Lake Erie railway. R. W. Jones is superintendent and J. E. English is mine boss. The shaft is 178 feet in depth, penetrating the Massillon seam of coal. It is worked on the double entry system, and exhaust steam is used as the ventilating power. On my last visit they were making the bottom of the shaft and 10 day men were employed.

CENTRAL

Is a new shaft, 260 feet in depth, located on the Cleveland, Canton and Southern railway, near the old Upper Pigeon Run mine. Philip Sonnhalter is superintendent and John Hammer is mine boss. This mine is worked on the double entry system, and exhaust steam is used as a ventilating power. It is opened into the No. 1 seam of coal, which is here five feet in thickness. Forty miners and nine day men were employed. This is a single shaft, and the engine works on first motion, there being no safety catches on the cage I ordered that they be supplied at once.

DRAKE.

This is a new shaft, 165 feet in depth, situated near the village of Newman, on a branch of the Pittsburg, Ft. Wayne and Chicago railway. It is owned by the Drake Coal Company, with E. E. Fox as superintendent and F. J. Keller as mine boss. It is worked on the double entry system, and is opened into the Massillon seam of coal, which is five feet in thickness at this point. Twenty-eight miners and 16 day men were employed. I tested the scales and found them weighing correctly.

WARWICK

Is located near East Greenville, on the Cleveland, Canton and Southern railway. George Swier is superintendent and C. E. Swier is mine boss. This is a shaft opening, 200 feet in depth, and it penetrates the No. 1 or Massillon seam of coal. It is worked on the double entry system, and is ventilated by a fan. One hundred and ten miners and 35 day hands were employed. I tested the safety catches and the scales and found them to be all right. Three visits were made to this mine.

UPPER PIGEON RUN

Is located near West Brookfield, on the Cleveland, Canton and Southern railway, and is owned by the Upper Pigeon Run Coal Company. George Swier is superintendent and Fred Gresser is mine boss. This is a shaft, 250 feet in depth, into the No. 1 or Massillon seam of coal. It is worked on the double entry system, and a fan is used as a means of ventilation. On my last visit 47 miners and 27 day hands were employed in drawing pillars. I found the ventilation fair and the mine in good condition for pillar work. I tested the scales and found them to weigh correctly.

PARIS.

On my visit to this mine I found that it had been abandoned.

PLEASANT VALLEY

Is situated near the village of Paris, on the Alliance and Northern railway, and it is owned by the Pleasant Valley Coal Company. W. H. Randolph is superintendent and C. H. Hoffman is mine boss. This is a drift opening, made into the No. 5 seam of coal. It is worked on the single entry system, and a fan is used as a means of ventilation. Eighteen miners and four day men were employed here. On my second visit to this mine I ordered that the firing at noon be discontinued, as the general conditions of the mine were unsatisfactory to the department.

WESTERN MINE

Is situated on the Wheeling and Lake Erie railway and was formerly owned by the Western Ohio Coal Company. It is now owned and operated by the West Lebanon Coal Company. J. L. Green is superintendent and M. Davis is mine boss. This is a shaft opening, 90 feet in depth into the Massillon seam of coal, worked on the double entry system and ventilated by exhaust steam and a fan. Thirty miners and 12 day hands were employed in drawing pillars. The mine remained suspended during the first half of the year. I visited it twice, tested the scales and found them correct.

SUMMIT HILL

Is situated near the village of Greentown on the Valley railway. Lewis E. Smith is the owner and superintendent and Peter Dearoff is mine boss. This is a drift opening, into the No. 4 or Limestone seam of coal, which at this point is six feet in thickness. This includes a strata of stone in the center. The mine is worked on the double entry system and a furnace is used as a ventilating power. Twenty-one miners and five day men were employed here. The general conditions at this mine are unsatisfactory to the department. I tested the scales here and found them weighing accurately.

MASSILLON STANDARD

Is situated near the village of Navarre on the Ohio canal. It is a shaft opening, 30 feet in depth, penetrating the Massillon seam of coal, which is three feet in thickness at this point. Fred H. Hess is

the owner, and George Ray is superintendent and mine boss. It is worked on the double entry system and exhaust steam is used as a ventilating power. On my first visit to this mine I discovered that they were nearing the old Beaver Run Slope, which is full of water. I ordered that the mine be surveyed. On my second visit I found that according to the survey which had been taken, they were about 50 yards from the old works, as nearly as could be judged. I ordered that the room nearest the old works be drilled ahead with two holes not less than 10 feet apart. I have since learned that this side of the mine has been abandoned.

BOLINGER

Is located in Osnaburgh township near the village of Osnaburgh. Bolinger & Rice are the owners, with Frank Bolinger as superintendent and mine boss. This is a drift mine, opened into the No. 6 seam of coal, and the mine is provided with furnace ventilation. Ten miners and one day hand were employed. On my visit to this mine I found it in bad order. I requested that a stack be put on the air shaft and a furnace erected. On my return I found that my orders had not been complied with, so I stopped the mine until it would be placed in compliance with the law. The department has had considerable trouble here owing to the persistent disposition of the company to disregard the law.

TRESSSEL

Is located near Osnaburg on a branch of the Cleveland, Canton and Southern railway. It is owned by the L. R. Tressel Coal Company. John Zuber has entire supervision. This is a drift opening, into the No. 6 seam of coal, which is three feet in thickness at this point. It is worked on the double entry system and a furnace is used as a means of ventilation. Twenty-three miners and four day men were employed. I tested the scales and found them weighing accurately.

LAKE ERIE NO. 1

Is located in Osnaburgh township on a branch of the Cleveland, Canton and Southern railway and is owned by the Monongahela and Lake Erie Coal Company. E. H. Jones is superintendent and mine boss. This mine is worked on the triple entry plan. It is a drift opening, into the No. 6 seam of coal, and is ventilated by a furnace. Thirty-seven miners and 10 day hands were employed. On my visit

here I found the mine in as good condition as could be expected for pillar work, as they were having some little black damp to contend with.

CRYSTAL SPRING

Is situated near the village of Millport on the Cleveland, Lorain and Wheeling railway, and is owned by the Crystal Springs Coal Company. J. B. Moore is superintendent and mine boss. This is a shaft opening, 70 feet in depth, into the No. 1 or Massillon seam of coal, which is four feet in thickness at this point. Exhaust steam is used as a means of ventilation. Fourteen miners and five day men were employed. Upon my visit to this mine I found it in fair condition.

M'GINTY

Is situated near Louisville on the Pittsburg, Ft. Wayne and Chicago railway, and is owned by the Louisville Brick and Tile Company. This is a drift opening, into the No. 6 seam of coal, which is here three feet in thickness. Oliver Bumbaugh is superintendent and Sherman Harsh is mine boss. Fifteen miners and three day men were employed in mining coal and clay. Upon my visit to this mine I found that the men had refused to work, owing to there being a squeeze on the double parting. I ordered that the parting be timbered at once. The ventilation being poor, I requested a furnace be built at the air shaft. This being complied with, the mine will be in good condition.

LIST OF MINES EMPLOYING LESS THAN TEN MEN.

Name of mine.	Kind of opening.	Name of owner or operator.	No. of miners.	P. O. addr.
Sausser	Drift.	J. M. Sausser.....	3	Osnaburg
Plotner	"	D. Plotner.....	7	"
Dehauff	"	C. Dehauff.....	2	"
Messer	"	B. Messer.....	2	"
Mark	"	John Mark.....	3	"
Reibenstein.....	"	Wm. Reibenstein.....	4	"
Harman	"	Thos. Harmon.....	2	"
Bixby	"	Harvey Bixby.....	2	"
Snyder	"	Snyder Coal Co.	2	"
Smith	"	Albert Smith.....	5	"
Lahmiller & Kitz- miller	"	Lahmiller & Kitzmiller.....	9	Waco
Thouvenin Bros.....	"	Thouvenin Bros.....	8	"
Snyder	"	Wm. Snyder.....	3	"
Kramer	"	A. Kramer.....	2	"
Heims	"	F. Heims.....	7	"
Ball	"	A. Ball.....	8	N. Indus
Fox Run	Slope	H. Simmons.....	3	Canal F
Davis	Shaft..	D. Davis.....	7	Alliance
Carr	"	A. M. Carr.....	7	"
Robertson	"	J. J. Robertson.....	5	"
Eureka	Drift.	Mordick & Young.....	4	New Ber
Camp Clay	"	H. B. Camp.....	8	Altman
Brush Hill	Slope	Brush Hill Coal Co.....	6	Newman
Waynesburg B. & T. Co.	Drift.	Waynesburgh B. & T. Co.....	8	Waynesl
Canton & Osnaburgh B. & T. Co.	"	Canton & Osnaburgh B. & T. Co.....	8	Canton
Mass. Stone & F. B. Co.	"	W. G. Hipp.....	9	Massillon

TUSCARAWAS COUNTY.

GOSHEN NO. 2.

This mine is situated near the village of Beidler, on the C land, Lorain and Wheeling railway. It is a drift opening, made the Middle Kittanning or the No. 6 seam of coal. It is worked the double entry system, and ventilated by a furnace. Joseph Benshire is superintendent, and John Dugal is mine boss. One dred and twenty-five miners and 30 day hands were employed. miners having refused to travel in and out by the manway preferred for that purpose, I was called to make an inspection of the mine. Finding that the manway was a much better and safer road, I posted a notice prohibiting them from traveling over the main road, especially during working hours. I tested the scales and found them in good working order.

EAST GOSHEN NO. 1

Is located $5\frac{1}{2}$ miles east of New Philadelphia, on a branch of the Cleveland and Pittsburg railway. Joseph Brockenshire is superintendent, and S. J. Miles is mine boss. This is a drift opening, into the No. 6 seam of coal. It is worked on the double entry system, and is ventilated by a furnace. One hundred and seventy miners and 23 daymen were employed. The Mansfield Machine Company have put in a tail rope haulage. The outlet to the furnace having been widened as ordered, the ventilation of the mine is very satisfactory.

MASSILLON PEACOCK

Is located in Mineral Point, on the Valley railway, and is owned by E. Vankirk. John Puncheon has entire supervision. This is a drift opening, employing 34 miners and 16 day hands. The mine penetrates the No. 5 seam of coal. The general condition of the mine is entirely satisfactory to the department. I tested the scales and found them correct. I visited the mine twice during my term of office.

TUNNEL NO. 5

Is located near Mineral Point, on a branch of the Cleveland and Pittsburg railway, and it is owned by the Tunnel Mining Company. John Brick has entire supervision. This is a drift opening, into the No. 6 seam of coal which is here three feet in thickness. It is worked on the double entry system, and has furnace ventilation. Twenty-two miners and eight day men were employed. The tibble of this mine was burned down on July 29, causing the mine to be suspended for nearly six weeks. I tested the scales and found them weighing correctly.

STILLWATER

Is situated on the Cleveland, Lorain and Wheeling railway, in the village of Stillwater. It is owned by the Dover Coal Company. William H. Houk is superintendent, and Daniel O'Connor is mine boss. It is opened into the Upper Freeport or No. 7 seam of coal which is here five feet in thickness. Twenty-six miners and 12 day men were employed in drawing the pillars. Having worked up to their boundary they were about to abandon the mine on account of not being able to secure a lease of the Pocock coal. I have learned since that the lease has been secured and that operations have been resumed.

NEWPORT

Is located in Newport, on the Cleveland, Lorain and Wheeling railway, and is owned by the Erchard Coal Company. John Fisher has entire supervision. This is a drift opening, into the No. 6 seam of coal which is here four feet in thickness. It is worked on the double entry system, and a furnace is used as a mode of ventilation. Fifty eight miners and 12 day men were employed. I visited this mine three times and each time found it in good order and being conducted in a perfectly satisfactory manner. I tested the scales and found them in good working order.

ROCK CUT

Is situated in Rock Cut, on the Valley railway, and is owned by C. J. Markley. Daniel Harrison is superintendent and mine boss. This is a drift opening, into the No. 5 seam of coal which is here four feet in thickness. It is worked on the double entry system, and a furnace is used as a means of ventilation. Twenty-four miners and seven day men were employed. On my first visit I found this mine in a very unsatisfactory condition. One entry and three rooms were working ahead of the air which I ordered stopped until such time as the mine would be placed in compliance with the law.

HUFF'S RUN

Is located on the Valley railway, in the village of Mineral Point. It is owned by Ridgeway, Burton and Company. J. J. Kline has entire supervision. This is a drift opening, into the No. 5 seam of coal which is here from $3\frac{1}{2}$ to four feet in thickness. It is worked on the double entry system, and has furnace ventilation. Sixty miners and 13 day men were employed. A new furnace was built during the year.

EAGLE HILL

Is located in Fairfield township, near Zoar Station, on a branch of the Cleveland and Pittsburg railway, and is owned by W. R. Jones. Ebenezer Jones is mine boss. This is a drift opening, worked on the double entry system, into the No. 6 seam of coal which is here four feet in thickness. Twenty-three miners and eight day men were employed. On my first visit, I found this mine in very poor condition having natural ventilation. I ordered that an air shaft be sunk and furnace built. This being done, makes the general condition of the mine much better.

MIDVALE-GOSHEN NO. 1

Is situated in the village of Barnhill, on the Cleveland, Lorain and Wheeling railway, and is the property of the Midvale-Goshen Coal Company. Frank McIntosh is superintendent, and L. M. Beatty is mine boss. This mine is opened into the No. 6 seam of coal, and is worked on the double entry system. The furnace being drowned out they were compelled to use a fire basket as a means of ventilation. Since my first visit the mine has been abandoned.

MILDALE NO. 2

Is situated on the Cleveland, Lorain and Wheeling railway, in the village of Barnhill. Frank McIntosh is superintendent and W. L. Moke is mine boss. One hundred and six miners and 24 day men were employed. The mine penetrates the No. 6 seam of coal, is worked on the double entry system, and has furnace ventilation. On my first visit to this mine I found its condition very unsatisfactory. I ordered a break-through made in the blind pillars, a check door put on the mouth of the drift and the entry leading to the furnace widened. These improvements being made, the mine is in better condition. I visited it four times during the year.

MIDVALE NO. 3 (BROCK HILL)

Is situated at Barn Hill, on the Cleveland, Lorain and Wheeling railway, and is owned by the Midvale-Goshen Coal Company. Frank McIntosh is superintendent and George McIntosh is mine boss. This is a drift opening, made into the No. 6 seam of coal, and it is worked on the double entry system. One hundred miners and 24 day men were employed. The general conditions at this mine are not satisfactory to the department. I tested the scales and found them weighing accurately.

MAPLE GROVE

Is situated at Uhrichsville, and Schindler Bros. are owners and managers. Ten miners and two day hands were employed. This mine penetrates the No. 6 seam of coal, is worked on the double entry system, and has furnace ventilation. On my first visit to this mine I found no fire in the furnace. I ordered a break-through in the main entry filled up with bottom dirt. I found entrymen working 120 feet ahead of the air. I ordered this entry stopped, a break-through cleaned out and a fire to be kept in the furnace. At this mine the coal is all retailed.

BRIAR HILL

Is situated on the Ohio canal, near Canal Dover, and it is operated by Werner & Stine. Since my visit it has been abandoned.

SHILLINGS

Is situated on the Ohio canal, in Dover township, and it is owned by Joseph Shilling, who is also superintendent. H. M. Carl is mine boss. The mine is worked on the single entry system, and is ventilated by a furnace. It is opened into the No. 6 seam of coal, which is here four feet in thickness. This mine was found to be in fair condition.

SWAN.

This is a new mine, situated in Sandyville, on the Valley railway. It is owned by the Swan Coal Company, with Lewis Wolf as superintendent and J. H. Meiser mine boss. It is opened into the No. 1 seam of coal, which is here about three feet and four inches in thickness. It is worked on the single entry system, and a furnace is used as a means of ventilation. Thirty miners and seven day men were employed. I found the ventilation fair and the mine in good condition.

TWIN CITY

Is situated in the city of Dennison, on the Pittsburg, Cincinnati Chicago and St. Louis railway, and is owned and managed by William A. Davis. It is a drift opening into the No. 6 seam of coal, which is here four feet in thickness. It is worked on the double entry system, and has furnace ventilation. Sixteen miners and six day men were employed. The company having made an assignment, the mine has been suspended for an indefinite period.

SOUTH SIDE

Is situated in Mineral Point, on the Valley railway, and it is owned by C. E. Holden. Thomas Osborn has entire supervision. This is a drift opening into the No. 5 seam of coal. It is worked on the double and single entry systems, and is ventilated by a furnace. Thirty-eight miners and seven day men were employed. I found this mine in an unsatisfactory condition.

ACME

Is located in Mineral Point, on a branch of the Valley railway. George Markle is superintendent and George F. Brick is inside foreman. This is a drift opening into the No. 6 seam of coal, worked on the double entry system, and ventilated by a furnace. Sixteen miners and seven day men were employed. On my first visit to this mine I found its condition very unsatisfactory, and gave the company 10 days in which to place the mine in better order. On my return I found that the air courses had been cleaned out, break-throughs made and the furnace repaired. This placed the mine in fairly good condition.

SHANESVILLE

Is located in Sugar Creek township, on the Cleveland, Canton and Southern railway near the village of Shanesville. D. R. Thomas is superintendent and mine boss. This is a drift opening, worked on the single and double entry systems. The coal is here about three and one-half feet in thickness. The necessary improvements having been made places it in fairly good condition. I tested the scales and found them weighing correctly.

WAINWRIGHT NO. 4

Is located on the Cleveland, Lorain and Wheeling railway, near Wainright. Frank McIntosh is superintendent and D. R. Jones is mine boss. This is a slope opening into the No. 6 seam of coal, which is here four feet and eight inches in thickness. It is worked on the double entry system, and ventilated by a furnace. One hundred and fifty miners and 24 day men were employed. A system of rope haulage is employed here. I visited this mine twice during the year.

WAINWRIGHT NO. 5

Is situated on the Cleveland, Lorain and Wheeling railway, near the city of Wainright, and is owned and managed by the same parties as is the No. 4 opening. Owing to the scarcity of miners work has been suspended here for an indefinite period.

GORDEN

Is located at Mineral Point on a branch of the Cleveland and Pittsburgh railway. Davis Johns is superintendent and C. C. Smith is

mine boss. It is owned by the Gorden Coal Company. It is a drift opening, into the No. 6 seam of coal. The mine is worked on the double and single entry systems, and employed 80 miners and 15 day men. It was formerly known as the Pocock mine. I tested the scales here and found them weighing correctly.

SOMERDALE NO. 1

Is located on the Wheeling and Lake Erie railway in the village of Somerdale, and it is owned by the Somerdale Coal Company. Frank McIntosh is superintendent and Anthony Brown is mine boss. This is a drift opening, into the No. 5 seam of coal. It is worked on the double and single entry systems and ventilated by a furnace. Twenty miners and six day men were employed. On my last visit to this mine I found it in very poor condition. I ordered that three doors be put up, and I stopped the men and drivers from traveling on the main entry until a few tons of loose stone had been taken down. I tested the scales and found them weighing accurately.

SOMERDALE NO. 2

Is situated near the No. 1 opening on the same railroad, and it is owned, operated and managed by the same parties. It is a drift opening, into the same seam of coal. The ventilation of this mine has been injured by a squeeze coming on the ninth and tenth entries. The company is busily engaged in blasting it through. When this has been done the condition of the mine will be improved. I tested the scales and found them correct.

TRENTON

Is situated in the village of Trenton on the Ohio canal, and is owned by H. C. Minnich. A. S. Cinger is superintendent and mine boss. This is a drift opening, into the No. 6 seam of seam, worked on the double entry system and ventilated by a furnace. Seventeen miners and three day men were employed supplying domestic coal for the neighborhood. The general condition of this mine has been very unsatisfactory to the department.

MOREY RIDGE

Is situated on the Ohio canal near the village of Beidler. Gottlieb Affolder is superintendent and mine boss. This is a drift mine, into the No. 6 seam of coal, and it is worked on the double entry system

n miners and four day men were employed. On my visit to mine I found the ventilation fair, and the mine in good condition.

MINES EMPLOYING LESS THAN TEN MEN.

Name of mine.	Kind of opening.	Name of owner or operator.	No. of miners.	P. O. address.
F. B. Co.				
d).	Drift	Crown F. B. Co.	4	Canal Dover
F. B. Co.				
y)	"	"	6	"
	"	J. Lanser	8	"
No. 1.	"	J. Horn	4	"
No. 2.	"	"	5	"
No. 3.	"	"	5	"
an.	"	G. W. Kail	6	"
k.	"	P. Walick	3	"
	"	P. Reeves	2	"
er	"	R. Winkler	2	"
art.	"	S. Reinhart	3	"
ok & Wolf	"	Dashook & Wolf	4	"
rick.	"	Hardwick Coal Co.	4	"
ye F. & C. Co.				
y).	"	Buckeye F. & C. Co.	7	Uhrichsville
nsville F. & C.				
(Coal)	"	Uhrichsville F. & C. Co.	5	"
ye F. & C. Co.				
l).	"	Buckeye F. & C. Co.	4	"
nsville F. & C.				
(Clay)	"	Uhrichsville F. & C. Co.	6	"
nd Fire C. Co.				
y)	"	Diamond F. & C. Co.	5	"
nd Fire C. Co.				
l).	"	"	7	"
le Clay	"	J. J. Mazurie	2	"
	"	Oliver Coal Co.	7	Dennison
	"	W. Skells	9	"
ce Fire B. Co.				
y).	"	G. Markley	7	Mineral Point
ce Fire Clay				
(Coal)	"	"	8	"
	"	Lobby Coal Co.	5	"
orn.	"	J. B. Weyandt	6	N. Cumb'rst'n
	"	Cash Garver	8	Strasburg
	"	G. Brown	5	N. Phila.
r.	"	Butcher Coal Co.	5	"
on.	"	J. Emerson	7	"
as.	"	J. Mathias	6	"
le.	"	B. L. Grimm	8	"
ell.	"	J. Campbell	4	"
	"	J. Dunn	4	"

WAYNE COUNTY.

WAYNE SLOPE

Is located one and one-half miles north of Doylestown on the New York, Pittsburg and Ohio railway, and it is owned by the Wayne Coal Company. O. V. Dibble is superintendent and Cyrus Evans is mine boss. This is a slope opening, into the Massillon seam of coal which is here three feet and six inches in thickness. It is worked on the single and double entry systems, and exhaust steam and furnace are used as a means of ventilation. I found this mine in rather unsatisfactory condition.

DALTON

Is situated near Dalton on the Wheeling and Lake Erie railway, and it is owned by the Howells Mining Company. Anthony Owens has entire supervision. This is a shaft, 150 feet in depth, penetrating the Massillon seam of coal, which is here four feet and four inches in thickness. It is worked on the double entry system, and exhaust steam is used as a ventilating power. Fifty miners and fifteen day men were employed in drawing the pillars, as the mine is nearing completion. I tested two sets of scales, and finding the retailed scale incorrect, I ordered them repaired at once.

MOBILE

Is situated near Doylestown, and is owned by Baysinger & Duncan. F. W. Baysinger is superintendent and John Duncan is mine boss. This is a drift mine, opened into the No. 1 or Massillon seam of coal. It is worked on the single entry system, and a furnace and exhaust steam are used to ventilate it. Eleven miners and four day men were employed supplying coal for the trade of the neighborhood. I tested the scales and found them weighing correctly.

PEACOCK

Is located near the Mobile mine. It is a drift opening, into the No. 1 or Massillon seam of coal. It is worked on the single entry system and has natural ventilation. John Santrock is owner and manager.

CALIFORNIA

Is situated near the Mobile and Peacock mines, and is owned by Seiberling & Miller. Wm. Albright is superintendent and mine boss. This is a drift opening, into the No. 1 or Massillon seam of coal. The mine has furnace ventilation. Five miners and three day men were employed.



REES T. DAVIS,
INSPECTOR SEVENTH DISTRICT, EAST PALESTINE, OHIO.



REPORT OF REES T. DAVIS,

Inspector of the Seventh District, from November 15, 1897, to
November 15, 1898.

R. M. HASELTINE, Chief Inspector of Mines:

DEAR SIR: I have the honor to submit to you my annual report for the year ending on November 15, 1898, as to the condition and improvements of the mines in the Seventh District.

On September 19 at the Central mine, located at Lisbon, gas (CH_4) was ignited in a drill hole at the face of the main air way, setting the coal on fire and filling the mine with deadly gas, smoke and soot. When the writer arrived at the mine it was found that James Conley was in the burning mine and had succumbed to the deadly gas which was accumulating from the fire. Exploring parties entered the mine to search for the missing man. After several unsuccessful attempts the efforts of the volunteers were finally rewarded by finding the dead body of their fellow-craftsman at his working face. The deadly after damp had caused asphyxiation. Great bravery was exhibited by these volunteers in entering the mine, as quite a number of them were overcome by the deadly damp.

I now take this opportunity of thanking these men who so bravely assisted me in this great and hazardous task of rescuing our fellow-miner and getting the fire under control. I also desire to thank you for your able counsel, which I have received from time to time. I am,

Respectfully,

REES T. DAVIS,
Inspector Seventh District.

November 15, 1898.

COLUMBIANA COUNTY.

PLEASANT VALLEY NO. 1

located at Negley, on the Pittsburg, Lisbon and Western railway, and is owned by the Holly Coal Company. W. S. Lewis is superintendent and P. H. Murphy is mine boss. This is a drift opening into the No. 6 seam of coal, and is two feet and nine inches in thickness. It is worked on the single entry system, and has fan ventilation.

Fifty miners and eight day hands were employed. While in operation this mine was kept in very good condition. It suspended work during the early part of the year, and has since remained so, with prospects of resuming in the near future.

CAMPBELL

Is located in Middleton township, on the Pittsburg, Lisbon and Western railway, and is owned by the East Palestine Coal Company. W. S. Lewis is superintendent and P. H. Murphy acts as mine boss. This is a drift opening into the No. 6 seam of coal, which at this point is about two feet and six inches in thickness. It is worked on the single entry system, and has furnace ventilation. Thirty-five miners and three day hands were employed. The ventilation and mode of conducting the mine has kept it in excellent condition.

QUAKER VALLEY

Is located at Rogers, on the Pittsburg, Lisbon and Western railway, and is owned by the Quaker Valley Mining Company. J. Streeter is superintendent and William Weikart is mine boss. This is a drift opening into the No. 6 vein of coal, and at this point is six inches thick. It is worked on the single entry system, and has furnace ventilation. Fifty miners and eight day men were employed here. This company made an assignment, placing the mine in the hands of a receiver in the month of July. In consequence the mine was idle the remainder of the year. It was kept in good condition.

DEWEY

Is located at New House, on the Pittsburg, Lisbon and Western railway, and is owned by the Elkton Mining Company. H. V. Sano is superintendent and Robert Bycroft acts as mine boss. This is a drift opening into the No. 6 vein of coal, which at this point is about three feet in thickness. It is worked on the single entry system, and a fire basket is used for ventilating power. Twenty-five miners and three day men were employed. An air shaft was sunk during the year. With the exception of the water, which annoyed them when their entry dipped, the mine was kept in fair condition during the year.

CENTRAL

Is situated at Lisbon, on the Erie railway, and is owned by Carl Prosser. Thomas Prosser is superintendent and David Lewis is mine boss. This is a slope opening into vein No. 3, which at this point

about three and one-half feet in thickness. Thirty-five miners and eight day hands were employed here. This mine is worked on the single entry system, and a fan is used as a means of ventilation. During the early part of the year a squeeze came on the south side of the mine, which eventually shut off that side. Then the company turned its attention to the mining of some coal, which they had left lying between this and the old Booth mine. After working but a short time they broke through into the old Booth mine. This side was soon finished, and the squeeze on the south side having settled, the company concluded to try and regain the working faces. This they attempted by driving around the fall. They started an entry from No. 8 butt and had driven some 200 yards when a drill hole in the air course liberated some gas (CH_4), which ignited from a naked lamp setting the coal on fire and filling the mine with deadly after damp and smoke. James Conley being in the mine at the time and not hearing the entry men going, who failed to give him warning, fell a victim, and was suffocated by the after damp. A full report of his untimely death was embodied in the inquest and filed in the office at the time of the accident. The fire was bricked off and smothered, after which the company decided to draw what pillars they could get and then abandon the mine. At the end of the year the pillars were being drawn back as fast as could be done with economy and safety to all.

PINE HILL.

Is a shaft mine, located at Teegarden, on the Erie railway, and is owned by Card & Prosser. Thomas Prosser is superintendent, and William Lewis acts as bank boss. The opening is a shaft, to the No. 3 vein of coal which is about 3½ feet in thickness at this point. Eighty miners and 13 day hands were employed here. It is worked on the single entry system, and fan ventilation is used. During the year an air shaft was sunk and a 10-foot fan erected which greatly improved the condition of the mine.

CARD & PROSSER NO. 4

Is located at Lisbon, on the Erie railway, and is owned by Card & Prosser. Thomas Prosser is superintendent, and David Lewis acts as mine boss. This is a drift opening, into the No. 6 seam of coal which at this point is about 28 inches in thickness. The mine is worked on the single entry system, and fan ventilation is used. Thirty miners

and five day men were employed. The condition of the mine was greatly improved during the year by the sinking of a new air shaft and the erection of a fan.

CHERRY VALLEY NO. 3

Is located at Washingtonville, on the Erie railway and is owned by the Cherry Valley Iron Works. T. R. Lewis is superintendent, and Daniel McGrath acts as mine boss. This is a slope opening, into the No. 3 seam of coal which is about $3\frac{1}{2}$ feet in thickness at this point. Ninety miners and 20 day hands were employed here. It is worked on the single entry system, and fan ventilation is used.

OAK HILL DRIFT

Is located at Washingtonville, on the Salem railway, and is owned by the Oak Hill Coal Company. I. N. Russell has entire supervision. This mine is worked on the single entry system, and has furnace ventilation. Fifty miners and eight day hands were employed. I found the ventilation deficient and stopped three entries where 30 miners were working in rooms. On December 10, I gave the superintendent and general manager a written notice to place the mine in lawful condition. On my next visit, I found that the condition of the mine was being improved. It suspended operations the first of June, and remained idle until the close of the year.

SALEM

Is located on the Salem railway, two miles west of Washingtonville, and is owned by the Salem Coal Company. William Dunn is superintendent and bank boss. Eighty miners and 14 day men were employed. This is a drift opening, worked on the single entry system, and a fan is used as a means of ventilation. The mine is kept in good condition.

FAIRFIELD NO. 2

Is located at New Waterford, on the Pittsburg, Ft. Wayne and Chicago railway, and is owned by the Fairfield Coal Company. Thomas D. Sutherin has entire supervision. This is a drift opening, into the No. 6 seam of coal which is about $3\frac{1}{2}$ feet in thickness at this point. The mine is worked on the single entry system, and fan ventilation is used. One hundred miners and 20 day hands were employed. It has been kept in excellent condition throughout the year.

CARBON HILL NO. 4

Is located at East Palestine, on the Pittsburg, Ft. Wayne and Chicago railway, and is owned by the East Palestine Coal Company. W. S. Lewis is superintendent, and William Morris is bank boss. This is a drift opening, into the No. 6 seam of coal which averages from four to $4\frac{1}{2}$ feet in thickness at this point. It is worked on the single entry system, and a furnace is used as a means of ventilation. Forty-five miners and eight day men were employed. The mine was kept in fair condition throughout the year.

CARBON HILL NO. 3

Is located at East Palestine, on the Pittsburg, Ft. Wayne and Chicago railway, and is owned by the East Palestine Coal Company. W. S. Lewis is superintendent and William Morris is mine boss. From 12 to 15 miners find employment here. During the forepart of the year the pillars were being drawn. This mine was exhausted and abandoned during the year.

CARBON HILL NO. 2

Is located near the No. 3 mine, and is owned and managed by the same parties. It was also worked out and abandoned during the year.

PROSPECT HILL

Is located at East Palestine, on the Pittsburg, Ft. Wayne and Chicago railway, and is owned by the Prospect Hill Coal Company. W. S. Lewis is superintendent and W. B. Lewis is mine boss. This is a slope opening into the No. 6 seam of coal, which is about three and one-half feet in thickness at this point. It is worked on the single entry system, and a fan is used as a means of ventilation. Seventy miners and 20 day men were employed. With the exception of being troubled with water the mine was kept in fairly good condition throughout the year. I tested the scales here and found them to be in very bad order. After cutting away a portion of a sill, which supported the scales, so that they could work without rubbing, they weighed accurately.

LIST OF MINES EMPLOYING LESS THAN TEN MEN.

Name of mine.	Kind of opening.	Name of owner or operator.	No. of miners.	P. O. address.
State Line	Slope	State Line Coal Co.	8	E. Palestine
Wheat Hill	Drift	Wheat Hill "	9	"
Ranch	"	O. S. Ranch	2	Unity
Mollenkopf	"	J. Mollenkopf	2	"
Eureka	"	Joe Hisey	2	N. Waterford
Hall Ridge	"	Ludwig Frenger	5	"
Cement	"	Ohio Cement Co.	5	Lisbon
Sheens	Shaft	Wm. Sheen	7	Salem
First National	Drift	James Post	7	"
Lincoln	Shaft	Hugh Laughlin	9	E. Palestine
Pine Hollow	Drift	James Ashman	9	Salem

MAHONING COUNTY.

STOFFER

Is located at Washingtonville, on the Erie railway, and is owned by the Washingtonville Mining Company. Frank Stoffer is superintendent and David Stoffer is mine boss. This is a shaft opening, 40 feet in depth, into the No. 3 vein of coal, which runs from two and one-half to three and one-half feet in thickness at this point. This mine is worked on the single entry system, and a fan is used as a means of ventilation. Forty miners and eight day hands were employed. The mine was kept in good order throughout the year.

FAIRVIEW

Is located at Washingtonville, on the Erie railway, and is owned by the Fairview Coal and Mining Company. J. C. Weikart has entire charge. This is a drift opening into the No. 4 vein of coal, which is only about two feet in thickness at this point. The mine is worked on the single entry system, and a furnace is used as a means of ventilation. Fifteen miners and three day men were employed. The mine was kept in fair condition throughout the year.

M'KINLEY

Is located at Beloit, on the Pittsburg, Ft. Wayne and Chicago railway, and is owned by the Mahoning Coal Company, with George Caufield as receiver. E. G. Marshall is superintendent and J.

Evans is mine boss. This is a shaft opening into vein No. 3, and it varies from three to four and one-half feet in thickness at this point. This mine is worked on the single entry system, and exhaust steam is used as a means of ventilation. Fifteen miners and 12 day men were employed. This mine was idle the greater part of the year, and when in operation it was not kept in as good a condition as is required by the department.

BELOIT SHAFT

Is located at Beloit, on the Pittsburg, Ft. Wayne and Chicago railway, and is owned by the Youngstown Paving Brick Company. **Thomas Ritchie** is superintendent and mine boss. This is a shaft opening into the No. 3 vein of coal, and at this point it is about three feet in thickness. It is worked on the double entry system, and is ventilated by a fan. Ten miners and 12 day men were employed. This mine was kept in fair condition throughout the year. On September 1 I was called here to investigate the cause of the death of **William McKay**, who was found in the sump under the cages. As no one saw him fall in or cross over from one side of the shaft to the other, his death will always remain a mystery. Whether he was struck by the descending cage or whether he fell in will never be known.

LIST OF MINES EMPLOYING LESS THAN TEN MEN.

Name of mine.	Kind of opening.	Name of owner or operator.	No. of miners.	P. O. address.
Garfield	Drift.	J. C. Devine	5	Alliance
Sears	"	David Coy	7	Salem
Pow	"	Godward & Sons	7	"
Robert Auld	"	Robert Auld	4	"
Greenmyer	Shaft	John Howells	9	"
Oak Hill Slope	Slope	Oak Hill Coal Co	8	Wh'gtonv'le
Cyrus Paulin	Shaft	Cyrus Paulin	9	Poland
Little	"	Daniel Little	8	Woodworth
Jones	"	Jones Bros	7	Poland
Spait	"	Wilcox & Peacock	7	North Lima

PORTAGE COUNTY.

HUTSON NO. 1

Is located at Davis Roads, on the Alliance and Northern railway, and is owned by the Hutson Coal Company. Thomas J. Williams is superintendent, and Roger Lewis acts as mine boss. This is a shaft opening, 60 feet in depth to what is known as the Palmyra Block seam of coal which is here from three to four feet in thickness. This mine is worked on the single entry system, and fan ventilation is used. Thirty miners and 12 day hands were employed here. During the past year the working in this mine has been confined to drawing pillars. The mine was kept in fairly good condition.

HUTSON NO. 2

Is located at Davis Roads, on the Alliance and Northern railway, and is owned and managed by the same parties as No. 1. This is a shaft opening, 190 feet in depth to the Palmyra Block seam of coal which at this point is from two to 3½ feet in thickness. It is worked on the single entry system, and a fan is used as a means of ventilation. Seventy-five miners and 15 day men were employed. This mine is kept in fair condition.

HUTSON NO. 5

Is located near Kenns Crossing, on the Alliance and Northern railway, and is also owned and managed by the same parties as are Nos. 1 and 2, except that Arthur Johns is mine boss. This is a shaft opening, 190 feet in depth to the famous Palmyra Block seam of coal which is about four feet in thickness at this point. It is worked on the single entry system, and has fan ventilation. Seventy miners and 15 day hands were employed. This mine was formerly owned by the Filer Coal Company, the Hutson Coal Company having purchased it at the beginning of the year. The inside of the mine was greatly improved by the building of a good haulage road, also a drain which would bring the water back to the bottom of the shaft. With these improvements the mine was in good condition.

HUTSON NO. 4

Is located at Deerfield, on the Alliance and Northern railway, and is owned by the same parties as are Nos. 1, 2, and 5. J. P. Williams is mine boss. This is a shaft opening, 210 feet in depth to the Palmyra

rock seam of coal. Sixty miners and 20 day hands were employed. This mine is worked on the single entry system, and fan ventilation used. A 10-foot fan was erected which greatly improved the condition of the mine.

SUMMIT COUNTY.

FOX LAKE

is a shaft mine, 145 feet in depth. It is located near Clinton, on the Cleveland, Akron and Columbus, and the Baltimore and Ohio railways, and is owned by the Fox Lake Coal Company. G. F. Huber is in entire supervision. On my first visit, I found them sinking a shaft which was down about 115 feet. On September 3, the date of my next inspection, I investigated the cause of the death of Philip Atticare, who was killed from the fall of a small piece of clay from the bucket when it was nearly to the top of the shaft. The stone striking him on the head, killed him almost instantly.

TURKEY FOOT

located near Manchester, and ships over the Cleveland, Akron and Columbus, and the Baltimore and Ohio railways. It is owned by the Jewster Coal Company, with John S. Davis as superintendent and the boss. This is a shaft opening, into the Massillon or No. 1 seam coal which varies from three to four feet in thickness at this point. One hundred miners and 27 day men were employed. This mine is worked on the double entry system, and exhaust steam is used as a ventilating power. I tested the scales and found them correct. This mine is kept in excellent condition.

WHITE SPAR

was worked out and abandoned during the early part of the year.

LIST OF MINES EMPLOYING LESS THAN TEN MEN.

Name of mine.	Kind of opening.	Name of owner or operator.	No. of miners.	P. O. address.
Hill Clay.....	Drift..	Whitmore & Robinson...	8	Akron
Webb Clay.....	"	Akron Stoneware Co.....	6	"
Swinehart.....	"	J. B. Woods Heirs.....	3	"
Merrill.....	"	Merrill Clay Co.....	2	"
South End Drift.....	"	South End Coal Co.....	4	Tallmadge
Thomas No. 8.....	"	Thomas Coal Co.....	6	Cuya'ga Falls
Pleasant View.....	Shaft..	Robert Adams.....	9	"
Nimisila.....	Drift..	Lewis John.....	4	Nimisila

MEDINA COUNTY.

AKRON NO. 2

Is located near Wadsworth on the Erie railway. It is owned by the Akron Coal Company, and is under the supervision of V. Gersternlagan as superintendent, and Joseph Gordon as mine boss. This is a shaft opening, 100 feet in depth, into the Massillon or No. 1 seam of coal, and is from four to five feet in thickness at this point. The mine is worked on the double entry system, and is ventilated by exhaust steam. It was worked out and abandoned during the early part of the year.

AKRON NO. 4

Is located near the No. 2 mine, and is owned and managed by the same parties. This is a slope opening, into the No. 1 seam of coal. It is worked on the single entry system, and is ventilated by exhaust steam. Twenty-five miners and six day men were employed here. During the year a second opening was made, and an air shaft sunk which greatly improved the condition of the mine.

ELDORADO.

This mine was worked out and abandoned during the year.

HUDSON RUN.

This mine was worked out and abandoned during the year.

CARDS NO. 3

Is located near Wadsworth on the Erie railway, and is owned by the Card Coal Company. O. V. Dibble is superintendent, and Cyrus Evans is bank boss. This is a slope mine, to the No. 1 seam of coal, which is about four feet in thickness at this point. This mine is worked on the double entry system, and is ventilated by exhaust steam. Sixty miners and 12 day men were employed. The condition of this mine was not up to the State's standard, either in ventilation or drainage. The management has agreed to put it in better order as soon as they possibly can.

KLONDIKE

Is located near Wadsworth on the Erie railway, and is owned by Hutchison & McIllaney, with John Hutchison as superintendent and mine boss. This is a slope opening, into the Massillon or No. 1 seam of coal, and is worked on the double entry system. Exhaust steam is used as a means of ventilation. Thirty-five miners and three day hands were employed. This mine was kept in good condition during the year.

SILVER CREEK

Is located near Wadsworth on the Erie railway, and is owned by the Silver Creek Coal Company. Richard Allen is superintendent, and Peter Schawlbach is mine boss. This is a slope opening, into the Massillon or No. 1 seam of coal. Thirty miners and three day men were employed here. This mine is worked on the double entry system, and furnace ventilation is used. It is kept in good condition.

NEW EXCELSIOR NO. 2.

This mine was worked out and abandoned during the year.

LIST OF MINES EMPLOYING LESS THAN TEN MEN.

Name of mine.	Kind of opening.	Name of owner or operator.	No. of miners.	P. O. address.
Hambleton	Drift..	Cunningham Coal Co.	5	Wadsworth
Myers	Shaft	David & Harrison	8	"

TRUMBULL COUNTY.

APPLEGATE

Is located in Hubbard township and ships over the Lake Shore railway. It is owned by the Witch Hazel Coal Company, David Jacob having entire supervision. This mine is opened into and connected with the old Applegate mine, which gives off quite an amount of black damp. This makes the work disagreeable, and the ventilation bad. I was called here on October 25 to investigate the cause of the death of James Ward Clark, who was killed by falling down the shaft. The next visit was made in company with Mr. R. M. Haseltine, the Chief Inspector, for the purpose of looking over the mine to see if it would be advisable to put down an air shaft in order to cope with the black damp, which came from the old mine. Upon our arrival we found that the mine was about worked out, and the company failed to find any coal that would justify them in going to further expense, so they decided to draw the pillars, which they were doing at the time of our visit. The mine was abandoned at the close of the year.

LIST OF MINES EMPLOYING LESS THAN TEN MEN.

Name of mine.	Kind of opening.	Name of owner or operator.	No. of miners.	P. O. address
Mazey	Drift.	J. V. Rose	3	Sharon, Pa.
Keel Ridg	"	Keel Ridge Coal Co.	2	"

STARK COUNTY.

The mines which I visited in other districts were as follows: New Greenville, January 26, 1898; West Massillon No. 3, January 1898; Warwick, January 28, 1898, and Minglewood Slope No. 1 January 29, 1898. All of these are in Stark county. A report of these visits was filed in the office.

LIST OF

Coal, Fire Clay and Iron Ore Mines,

ALSO A LIST OF

THE LIMESTONE QUARRIES IN THE STATE,

**Giving the Names of Each, the Name and
Postoffice Address of the Owners
or Operators.**

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COAL MINES.

LIST OF MINES EMPLOYING MORE THAN TEN MEN.

ATHENS COUNTY.

of mine.	Kind of opening.	Name of owner or operator.	P. O. address.
le...	Drift.	Carbondale Coal Co.	Carbondale
o. 1.	Shaft.	Phoenix Coal Co.	Toledo
o. 2.	"	"	"
lle No. 4.	"	W. P. Rend & Co.	Chicago, Ill.
ge.	"	"	"
	"	Sunday Creek Coal Co.	Columbus
	"	Courtright, Kistler & Co.	"
No. 55.	Drift.	Maple Hill Coal Co.	Nelsonville
No. 2.	"	"	"
	"	Jonas Patton.	"
	"	J. M. Stillwell.	"
	"	Wilson & Siddle.	"
	"	Raybould Coal Co.	"
dwood.	"	Glenmore Coal Co.	"
	Shaft.	Northern Fuel Co.	Jacksonville
	Drift.	O. Brent Guard.	Marietta
alley No. 1.	"	G. W. Haybron.	Broadwell
alley No. 2.	"	Marietta Run C'l & Coke Co.	New York City
	Slope.	Sedalia Coal Co.	Glouster
	Shaft.	North Star Fuel Co.	Oak Dale
in.	Drift.	Hocking Valley Coal Co.	Columbus
mond.	"	Black Diamond Co'l & C. Co.	"
	Shaft.	Luhrig Coal Co.	Cincinnati
	Drift.	Shafer Coal Co.	Glen Ebon
	Shaft.	Buckeye Coal Co.	Nelsonville
	Drift.	A. H. Wells.	"
	"	Price & Patton.	"
ll.	"	Canny & Co.	Mineral
	Slope.	C. A. Nice.	Big Run
New.	"	Greendale Furnace Co.	Columbus
	Shaft.	Beaumont & Chauncey Coal Co.	Chauncey

MINES EMPLOYING LESS THAN TEN MEN.

ATHENS COUNTY—Concluded.

Name of owner or operator.	P. O. ad
Robinet & Gibson	Nelsonvi
C. P. Evans	"
Clark Wilson	"
Nelsonville Sewer Pipe Co.	"
Irven Coal Co.	"
Ed Holland	"
G. W. Hall	"
J. F. Schuler	Sharpsbu
Martin & Montgomery	Beebe
Wolf & Foughty	Glen Ebo
East Clayton Clay Manufacturing Co.	Nelsonvi
Davis & Evans	Glouster
John Gulley	Jacksonv
Lewis Wetzel	Buchtel

MINES EMPLOYING MORE THAN TEN MEN.

BELMONT COUNTY.

Name of mine.	Kind of opening.	Name of owner or operator.	P. O. ad
Wheeling Creek No. 1	Drift	Pittsburg & W. Coal Co.	Bridgepo
Wheeling Creek No. 2	"	"	"
Crescent No. 1	"	"	"
Etna Standard	"	Etna Sta'd Iron & S'l Co	"
McConaughy	"	James McConaughy	"
Nail Mill	"	Bellaire Steel Co	Bellaire
Bernard	"	Nail Mill Co	"
Schicks	"	James Turnbull & Co	"
Belmont No. 1	"	Jacob Heatherton	"
Belmont No. 2	"	Belmont Coal Co	"
Pittsburg	Slope	Pittsburg Block Coal Co.	Pittsburg
Morgan	Drift	Mrs. Mary M. Gorrell	Bellaire
Maple Hill	"	Maple Hill Coal Co	Barton
Boggs No. 2	"	E. N. Boggs	"
Taggarts	"	Joseph Schindler	"
Flushing	"	Flushing Coal Co.	Elyria
Rock Hill	"	Townsend-Miller Coal Co	Cleveland
Black Diamond	"	C. Troll's Sons	St. Clair
Laughlin	"	Laughlin Nail Co	Wh'el'g.
Captina	Shaft	Captina Coal Co.	Ar'stro'p
Kidds No. 2 or Standard	Drift	Alex Neff	Neffs
Franklin	"	Owen Meehan	Stewarts
Quaker City	Slope	Cochran & Co	Quaker C
Walnut Hill No. 2	Drift	O. & P. Coal Co.	Cleveland
Gaylord	"	Roderick & Jones	Martin's
Glen	Slope	Glen Coal Co	Glen
O. & W. Va.	Drift	O. & W. Va. Coal Co.	St. Clair
Wegee	Slope	Wegee Coal Co	Ambler
Echo	Drift	W. D. Noble	Neffs

MINES EMPLOYING LESS THAN TEN MEN.

BELMONT COUNTY—Concluded.

Name of owner or operator.	P. O. address.
Elias McConaughy	Bridgeport
Dr. J. A. Hobson	Flushing
Robinson Brick & Tile Co.	Bellaire
David Boston	Bridgeport
Richard Davey	Barnesville
John Klee	Klee
Thos. Costine	Bridgeport
John Musgrave	Bellaire
Davis & Archer	"
Morris & Sandoe	Martins Ferry
Israel Pelkey	Bellaire
Koehnline & Son	Bridgeport
J. E. Schnegg	Powhatan
Henry Lewis	Martins Ferry
Lewis Helling	"
Michael Burns	"
George Keiger	"
Samuel Fielding	Powhatan
George Duvall & Bro.	"
Isaiah Owens	"
Chas. Rosser	Bellaire
Lewis Pelkey	"
W. S. Glasgow	Klee
John Reline	St. Clairsville
Rinker Bros	"
Heller Bros	West Wheeling
Chas. Held	Don
W. C. Sedgwick	Martins Ferry
Buck Bros	Bridgeport
D. K. Allen	Martins Ferry
J. W. Goldsmith	Barton
Henry Diehl	Don
John R. Crozier	Bellaire
A. C. Malden	Barnesville
Robert Applegarth	Don
Robert Clark	Stewartsville
George Neff	Neffs
D. R. Humphrey	Flushing
Able Walker	"
A. Conrow	"
J. Carlton Howell	"
George Jeffrey	Barnesville

MINES EMPLOYING MORE THAN TEN MEN.

CARROLL COUNTY.

Name of mine.	Kind of opening.	Name of owner or operator.	P. O. address.
Sherrodsville No. 3.....	Drift..	R. H. Wainwright.....	Massillon
Scotts No. 3.....	"	Croxall, Owen & Bowton..	East Liverpool
Elder.....	"	J. D. Owens Mining Co.	Canton
Linden No. 1.....	"	Davis Railway Coal Co.	"
Linden No. 5.....	"	David Railway Coal Co.	"
Malvern.....	"	Malvern Fire Clay Co.	Malvern
Sherrodsville No. 5 new..	"	J. H. Somers.....	Cleveland
Starkey.....	Slope..	Minerva Coal Co.....	Minerva

MINES EMPLOYING LESS THAN TEN MEN.

Name of owner or operator.	P. O. address.
Canton and Malvern Fire Brick Paving Co.....	Malvern
Myers & Hartford.....	"
The Beatty Fire Clay Co.....	Magnolia
Snowden & Moore.....	Carrollton
John E. Ebersole.....	"
H. E. Preston.....	Leesville
Sylvester Scott.....	Algonquin
Samuel Sharp.....	Sherrodsville
Abraham Richardson.....	"
Virgil Justice.....	"
S. P. Baker.....	Hagerstown
Conrad Pearch.....	Sherrodsville
F. P. Moody.....	Carrollton
G. C. McCreary.....	Leesville
Amor Preston.....	Palermo
James George.....	Harlem Springs
France & Brandon.....	"
Ezra Thompson.....	"
Samuel Gatshall.....	"
James A. Lee.....	"

MINES EMPLOYING MORE THAN TEN MEN.

COLUMBIANA COUNTY.

name of mine.	Kind of opening.	Name of owner or operator.	P. O. address.
s.....	Drift	Brown Coal Co.....	Salineville
on	"	Heatherington Bros.....	"
rington	"	"	"
.....	Slope..	O. & P. Coal Co.....	Cleveland
.....	Drift	James Strabley.....	Salineville
Hill	"	"	"
shaft	Shaft	Big Vein Coal Co.....	Cleveland
.....	Drift	Morrison Foster.....	Shields, Pa.
t Hill.....	Slope..	Prospect Hill Coal Co.....	East Palestine
t Valley.....	Drift	Holly Coal Co.....	"
Hill.....	"	Wheat Hill Coal Co.....	"
Valley No. 2.....	Slope..	Cherry Valley Iron W'k's	Leetonia
Valley No. 3.....	"	"	"
ational.....	Drift	Wm. Stone	Salem
Valley	"	Quaker Valley Mining Co.	Rogers
.....	"	Ohio Cement Co.....	Lisbon
.....	Slope..	Card & Prosser Coal Co.	"
Hill No. 4	Drift	East Palestine Coal Co.....	East Palestine
a No. 4	"	Card & Prosser Coal Co.	Lisbon
.....	Shaft	"	"
.....	Drift	Salem Coal Co.....	Salem
ollow	"	James Ashman.....	"
ells.....	"	East Palestine Coal Co.	East Palestine
d No. 2	"	Fairfield Mining Co.....	New Waterford
ill.....	"	Oak Hill Coal Co.....	Cleveland
.....	"	Elk Run Mining Co.....	Lisbon

LIST OF MINES EMPLOYING LESS THAN TEN MEN.

COLUMBIANA COUNTY—Concluded.

Name of owner or operator.	P. O. address
Columbiana Coal Co.	East Palestir
Allison & Bashaw.	Salem
O. S. Ranch.	Unity
Joseph Hisey.	New Waterf
Sweeney Strahley.	Salineville
Ludwig Frenzer.	New Waterf
Jonathan Mollenkopf.	Unity
E. J. Renkenberger.	East Fairfield
King & Pieren, lessees.	N. Chambers
G. McQuiston.	East Fairfield
M. Dailey.	Mosk
George Baker.	Washi'gtonv
Wm. McDonald.	Leetonia
J. H. Smith.	Linton
L. A. Greenawalt.	Leetonia
Wm. Ward.	East Palesti
Frank Lewis.	Washi'gtonv
J. C. Shepard.	Salem
Elizabeth Neiheisel.	Leetonia
Kegelmyer, McLosky & Co.	"
O. & R. Everhart.	Beloit
Standard Pottery Co.	Salineville
J. T. Billingsly.	East Palesti
John D. Smith.	Washi'gtonv
Enoch Jones.	East Liverp
F. M. Simpkins.	Elkton
Joseph Whittacar.	Inland
George Aten.	Wellsville
Philip March.	Lisbon
The Faulk Bros.	East Liverp
O. S. Hill.	Lisbon
Union Fire Clay and Stone Co.	"
Charles March.	Calcutta
Kirk & Vasey.	Salineville
C. W. Barret.	Calcutta

MINES EMPLOYING MORE THAN TEN MEN.

COSHOCTON COUNTY.

Name of mine.	Kind of opening.	Name of owner or operator.	P. O. address.
Morgan Run No. 3.....	Drift	Morgan Run Coal Co.	Cleveland
Franklin No. 1.....	"	Franklin Coal & Min'g Co.	Franklin Sta'n
Franklin No. 2.....	"	"	"
Conesville No. 3 new.....	"	David Davis.	Conesville
Conesville No. 4.....	"	"	"
Conesville No. 5.....	"	"	"
Coshocton No. 2.....	"	Bowers Coal Co.	Coshocton
Cosho. 1.....	"	Joseph Robson	"
Cosho. 2.....	"	Coshocton Coal Co.	"
Hill.....	"	W. J. Clough	"
Higham.....	"	Coshocton Coal Co.	"
Hudson No. 1.....	"	Hudson Coal Co.	"
Hudson No. 2.....	"	"	"
	"	Wade Coal Co.	Cleveland

MINES EMPLOYING LESS THAN TEN MEN.

Name of owner or operator.	P. O. address.
Key Cannel Coal Co.	Cleveland
West.....	Coshocton
Hudson.....	"
West & Sons.	"
Aronhalt.....	"
C. Tumblin	Conesville
as Lear.	Coshocton
C. Williams	West Lafayette
H. Gillen.	Roscoe

MINES EMPLOYING MORE THAN TEN MEN.

GALLIA COUNTY.

Name of mine.	Kind of opening.	Name of owner or operator.	P. O. address.
o. 1.....	Drift	E. L. Carl	Carlton
o. 2.....	"	"	"

MINES EMPLOYING LESS THAN TEN MEN.

GALLIA COUNTY—Concluded.

Name of owner or operator.	P. O. address.
M. D. Wilkinson	Bladen
Halley Bros.	"
W. S. Small	"
Raccoon Coal Co.	Gallipolis
D. D. Morgan	Thurman
Thomas E. Evans	"

MINES EMPLOYING MORE THAN TEN MEN.

GUERNSEY COUNTY.

Name of mine.	Kind of opening.	Name of owner or operator.	P. O. address.
Champion	Shaft	Wills Creek Coal Co.	Cleveland
Nicholson	Drift	Ohio Coal Co.	Cambridge
Guernsey	"	Cambridge Coal Co.	"
Hartford	Shaft	J. W. Ellsworth & Co.	Cleveland
Trail Run	"	"	"
Pioneer	Slope	Pioneer Coal Co.	Byesville
Forsythe	"	Forsythe Coal Co.	Danford
Cisco	Shaft	Opperman Coal Co.	Cambridge
Robbins	"	Morris & Guild Co.	Cleveland
Imperial	Drift	Hamilton Mining Co.	Cambridge
Klondike	"	Loomis, Moss Coal Co.	Lore City
C. C. C.	"	Cambridge Coal Co.	Cambridge
Walbonding	Shaft	Wills Creek Coal Co.	"

MINES EMPLOYING LESS THAN TEN MEN.

Name of owner or operator.	P. O. address.
C. C. Cheney	Post Boy
J. A. Boyd	Craig
D. W. Nicholson	Cambridge
J. S. Moore	Quaker City
J. T. Morrison	Cambridge
Samuel Sayers	Quaker City
M. A. Greist	"
James Burris	Craig
John Holbrook	Byesville
Frank Taylor	Craig
E. F. Barton	Quaker City
J. R. Bate	"
Carl Moore	"
James Likes	"
Hugh Keenan	"
E. H. Webster	"

MINES EMPLOYING MORE THAN TEN MEN.

HARRISON COUNTY.

me of mine.	Kind of opening.	Name of owner or operator.	P. O. address.
er.....	Drift.	East Massillon Coal Co	Massillon

MINES EMPLOYING LESS THAN TEN MEN.

Name of owner or operator.	P. O. address.
ackwell.....	Tappan
Penman.....	"
zatt.....	"
n.....	Hattonia
emens.....	Cadiz.
s.....	Moraville
head.....	Cadiz
unsey.....	Hattonia
chran.....	Cadiz
rr.....	"
tterson.....	"
fe.....	"
Long.....	"
mpbell.....	"
L. Nichols.....	Bowerston
edges.....	Cadiz
edges.....	"
fartin.....	"
asey.....	Moraville
ans.....	Freeport
shal.....	Bowerston
outs.....	Tippecanoe
Ross.....	"
ss.....	Freeport
waney.....	"
zeyandt.....	Bowerston
tevens.....	Tippecanoe
opeland.....	Folks Station
inna.....	Greenough
R. Skelley.....	Cleveland
h Snider.....	Greenough
Mattern.....	Folks Station
Leas.....	Means
iggett.....	Hopedale
Aukerman.....	Science Hill
rnhart.....	Cadiz
ecker.....	Tippecanoe
eets.....	Cadiz
Nash.....	Freeport
Auld.....	Tippecanoe

MINES EMPLOYING LESS THAN TEN MEN—Concluded.

HARRISON COUNTY—Concluded.

Name of owner or operator.	P. O. address.
J. P. & T. W. Liggett	Hopedale
J. C. Jamison	Cadiz
M. S. Jamison	"
Thos. Arbaugh & Sons	Jewett
Elmer Hines	"
O. C. Hines	"
John Busby	"
Morris Hoobler	Germano
Samuel Mull	"
C. B. Best	"
Jesse Cecil	Stillwater
Wm. Holmes	Hopedale
Wm. Birney	"
A. A. Cannon	New Athens
Robert Dinsmore	"
R. M. Love	"
John Webb	"
James Culbertson	"
W. R. Crinn, Sr.	"
M. A. Grimes & J. B. Williams	"
John March	Freeport
James W. Kerr	Cadiz
J. M. Copeland	Folks Station
David Allison Heirs	Hopedale
Thos. Young	"
A. H. Barrett	Hattonia
James D. Mitchell	Warfel
Lafayette Galbraith	Germano

MINES EMPLOYING MORE THAN TEN MEN.

HOCKING COUNTY.

Name of mine.	Kind of opening.	Name of owner or operator.	P. O. address.
New Pittsburg No. 7	Drift	New Pittsburg Coal Co.	Columbus
New Pittsburg No. 8	"	"	"
New Pittsburg No. 9	"	"	"
Sand Run No. 1	"	Buckeye Coal & R'y Co.	"
Morris No. 2	"	"	"
Morris No. 3	"	"	"
No. 29	Slope	Greendale Coal Min'g Co.	"
Black Diamond	Drift	Haydenville M. & M. Co.	Haydenville
Consolidated	"	Consolidated C. & M. Co.	Cincinnati
Coalgate	"	Somers Coal Co.	Columbus
Lost Run	"	Lost Run Coal Co.	Nelsonville
Snake Hollow	"	C. L. Poston & Co.	"
No. 15	"	Jacoby Coal Co.	Sand Run
Cawthorn	"	Stalter Coal Co.	Monday
Beattie Bros.	Slope	Beattie Bros. Coal Co.	Nelsonville

MINES EMPLOYING LESS THAN TEN MEN.

HOCKING COUNTY—Concluded.

Name of owner or operator.	P. O. address.
ma	Nelsonville
gton Coakley	"
stler	Longstreth
ans	Carbon Hill
hall	Nelsonville
utter	Sand Run
oal Co.	Longstreth
& Achauer	Haydenville

MINES EMPLOYING LESS THAN TEN MEN.

HOLMES COUNTY.

Name of owner or operator.	P. O. address.
Bowen	Millersburgh
razer	"
genthaler	"
rillon	"
evallard	"
3ros	"
illan	Killbuck
Ackeret	Millersburgh
ndlesberger	"
Bilderback	"
ast	Benton
elley	Millersburgh
orn	"
t Sens	Fredericksb'rg

MINES EMPLOYING MORE THAN TEN MEN.

JACKSON COUNTY.

Name of mine.	Kind of opening.	Name of owner or operator.	P. O. address
Superior No. 1.....	Shaft..	Superior Coal Co.....	Wellston
Superior No. 2.....	"	"	"
Superior No. 3.....	"	"	"
Superior No. 4.....	"	"	"
Superior No. 5.....	Drift..	"	"
Superior No. 6.....	Slope..	"	"
Chapman.....	Drift..	Chapman Coal Co.....	Jackson
Grace.....	Shaft..	"	"
Springfield.....	Drift..	"	"
Wellston No. 1.....	Shaft..	Wellston Coal Co.....	Wellston
Wellston No. 2.....	"	"	"
Wellston No. 3.....	"	"	"
Fluhart No. 1.....	"	Fluhart Coal Co.....	"
Fluhart No. 2.....	"	"	"
Fluhart No. 3.....	"	"	"
Hurd Shaft.....	"	Hurd Coal Co.....	Jackson
Hurd Slope.....	Slope..	"	"
Acorn Slope.....	"	Jones Coal Co.....	"
Jones No. 2.....	"	"	"
Price.....	Drift..	Gosline & Barbour.....	Toledo
Northern.....	Shaft..	Northern Coal Co.....	Jackson
No. 3.....	Slope..	Jones & Morgan.....	"
Eclipse.....	Drift..	Eclipse Coal Co.....	"
Coalton No. 3.....	"	Coalton Coal Co.....	Coalton
Ohio or Indiana.....	Slope..	Ohio Coal Co.....	Jackson
Emma.....	Shaft..	Emma Coal Co.....	"
Emma New.....	"	"	"
Emma No. 3.....	Drift..	Jackson Hill Coal Co.....	"
Standard.....	Shaft..	Standard Coal Co.....	"
Ada No. 2.....	"	Ada Coal Co.....	"
Globe No. 3.....	"	Globe Iron Co.....	"
Comet.....	"	Comet Coal Co.....	Wellston
Eliza.....	"	Eliza Coal Co.....	"
Milton No. 1.....	"	Milton Coal Co.....	"
Milton No. 2.....	"	"	"
Buckeye No. 2.....	Drift..	Buckeye Coal Co.....	Coalton
Wainwright.....	Shaft..	Wainwright Coal Co.....	Wellston
Central.....	Slope..	Central Mining Co.....	Jackson
Hipple.....	"	Hipple Coal Co.....	Coalton
Poling No. 2.....	Drift..	Poling Coal Co.....	Dayton
Alma.....	Shaft..	Alma Coal Co.....	Glen Roy
Victor No. 1.....	Drift..	Victor Coal Co.....	Coalton
Iron Valley No. 1.....	"	Iron Valley Coal Co.....	Jackson
Garfield New.....	"	Garfield Coal Co.....	Coalton
Sells.....	"	Sells Bros.....	"
Tom Corwin No. 1.....	Shaft..	Tom Corwin Coal Co.....	Dayton
Tom Corwin No. 2.....	"	Mach ne Coal Co.....	"
Jones Coal Co.....	Drift..	Jones Coal Co.....	Oak Hill
Oak Hill.....	"	Oak Hill F. B. Co.....	"
Oak Hill North Hill.....	"	"	"
Monroe.....	"	Briggs Coal Co.....	Esther
Davis of Oak Hill.....	"	Thos. Davis Coal Co.....	Oak Hill
Tom Rhodes.....	"	Coalton Coal Co.....	Coalton

MINES EMPLOYING LESS THAN TEN MEN.

JACKSON COUNTY—Concluded.

Name of owner or operator.	P. O. address.
it Coal Co.....	Glen Roy
& Hammer.....	Jackson
k.....	Coalton
& Bradshaw.....	"
.....	Jackson
Howe.....	"
& Haughton.....	"
w.....	"
Trago.....	"
Higgins.....	Coalton
ylan.....	"
ulkner.....	Leach
nes.....	Leo
i Byers.....	"
Mining Co.....	Jackson
Thompson.....	"
chison.....	Coalton
omas.....	Oak Hill
Davis.....	"
user.....	Chapman
al Co.....	Jackson
v.....	"
an.....	Coalton
npson.....	Jackson
ambers.....	"
Evans.....	Thurman
al Co.....	Kitchen
ngler.....	Jackson
Coal Co.....	Chapman

MINES EMPLOYING MORE THAN TEN MEN.

JEFFERSON COUNTY.

Name of mine.	Kind of opening.	Name of owner or operator.	P. O. address.
Dillon No. 2	Drift	W. L. E. & Pittsb'g Co'l Co	Dillonvale
Long Run No. 1	"	"	"
Long Run No. 2	"	"	"
High Shaft	Shaft	Steubenville C. & M. Co.	Steubenville
Forest City	Drift	Forest City Clay Co.	Toronto
Brilliant	Shaft	Brilliant Iron & Steel Co.	Brilliant
Oak Grove	Drift	Elmer E. Hicks	Bergholz
Big Vein	"	Wallace, Banfield & Co.	Irondale
Bustard	Shaft	Jefferson Coal Co.	Steubenville
Calumet	Drift	Calumet Fire Clay Co.	Calumet
Diamond No. 2	"	W. E. Smith	Wellsville
McFadyen	"	McFadyen Coal Co.	Carmen
New Slope	Slope	Elmer E. Hicks	Bergholz
Kelley No. 2	Drift	Kelley Coal Co.	Portland Sta'm
Eagle	"	Union Coal & Coke Co.	Bergholz
Great Western	"	Great Western Coal Co.	Toronto
Wilson	"	Henry Wilson	Steubenville

MINES EMPLOYING LESS THAN TEN MEN.

Name of owner or operator.	P. O. address.
John Nicholson & Son	Dillonvale
W. A. Taylor & Son	Bergholz
Adolph Pritchard	Irondale
B. F. Owens	Steubenville
John Householder	Irondale
Lodge & Curfman	Steubenville
Spaulding K. Wallace	"
Asa S. Permar	"
John Bates & Bro	"
S. M. Robertson	Wellsville
The Kennedy-Kling Co.	Toronto
Excelsior Sewer Pipe Works	"
Freeman Fire Clay Co.	Freeman
Ohio Valley Fire Clay Co.	Toronto
Empire Fire Clay Co.	Empire
Charles Wesley & Sons	Mingo Junction
John Menton	Wintersville
D. O. Finley	Costonia
J. F. Ball	Calumet
Samuel Carman	Unionport
Ralston & Crabb	Bloomingtondale
John Trushel	"
Joe Waller	Steubenville
Edmund Brown	Bloomingtondale
F. C. Hicks	Fair Play
Riverside Iron Works	Whe'li'g, W. Va.
Henry Cox	Smithfield
A. G. Wolf	"
John Hicks	"

INSPECTOR OF MINES.

1853

MINES EMPLOYING LESS THAN TEN MEN—Concluded.

JEFFERSON COUNTY—Concluded.

Name of owner or operator.	P. O. address.
Surviance.....	Smithfield
Snyder.....	Mt. Pleasant
Cooper.....	Richmond
ros.....	"
ley.....	"
McBane.....	Irondale

MINES EMPLOYING MORE THAN TEN MEN.

LAWRENCE COUNTY.

Name of mine.	Kind of opening.	Name of owner or operator.	P. O. address.
astle.....	Drift	Means, Kyle & Co.....	Hanging Rock
.....	"	Kelley Nail & Iron Co.....	Ironton
.....	"	Belfont Iron Works Co.....	"
ice Mill.....	"	H. Pirrung & Sons.....	Vesuvius
.....	"	J. F. Hall Coal Co.....	Campbell
.....	"	Henry Pirrung & Son.....	Vesuvius
.....	"	Halley & Wells.....	Pedro
or Bartles.....	"	Mrs. Lindsay Kelley.....	Ironton

MINES EMPLOYING LESS THAN TEN MEN.

Name of owner or operator.	P. O. address.
Ice Furnace Co.....	Ironton
Carey.....	Coal Grove
i. Lane.....	Ironton
Deegans.....	Coal Grove
s Anson, Sr.....	Ironton
ynd.....	"
& Scherer.....	"
Klien.....	"
teed.....	Forest Dale
Blackwell.....	Ironton
Villard & Co.....	Steece
isher.....	Ironton
Bros.....	Coal Grove
yan.....	"
Ritchie.....	Ironton
ll Fire Brick Co.....	Ashland, Ky.
Ellison.....	Macolm, Ill.
Clark.....	Miller
Johnson.....	"
Hughes.....	Culbertson

MINES EMPLOYING MORE THAN TEN MEN.

MAHONING COUNTY.

Name of mine.	Kind of opening.	Name of owner or operator.	P. O. address.
Beloit.....	Shaft.	Youngstown Block Coal and Clay Co.....	Youngstown
Stouffer.....	"	Washingtonville Min. Co.	Washingtonv
Fairview.....	Drift.	Fairview Coal & Min. Co.	"
McKinley.....	Shaft.	Mahoning Coal Co.....	Girard
Crescent.....	Slope.	M. T. Evans.....	Youngstown

MINES EMPLOYING LESS THAN TEN MEN.

Name of owner or operator.	P. O. address.
Garfield Brick Works.....	Alliance
Joseph Shriver.....	Salem
David Coy.....	"
George Godward & Sons.....	"
Robert Auld.....	"
Cyrus Paulin.....	Poland
Daniel Little.....	"
John Howells.....	Salem
McDonald Bros.....	North Lima
George Buzzard.....	East Lewiston
Joseph Leshner.....	"
Michael Fry.....	Columbiana
Jones Bros.....	Poland
Spait Coal Co.....	North Lima
S. S. & F. J. Mentzer.....	"
Barber & Hemingway.....	Beloit
David Hemingway.....	Alliance
Roose & Son.....	"
Ralph Urmson.....	Beloit
C. W. Holobaugh.....	North Lima
Robert Hunter & Son.....	Youngstown
E. H. Ruhlman.....	Poland
Ephraim Paulin.....	North Lima
Rorer & Little.....	"
W. P. Clemson.....	Garfield
Godward Bros.....	Beloit
John Kelley.....	Poland
J. C. Shepard.....	Salem
Greenford Fire Clay Co.....	Greenford
Griffith & McElvey.....	Kirk
Robert Cruin.....	Perkins
Hardy Bros.....	Ohlstown
E. H. Beardsley.....	"
C. H. Edsell.....	Canfield

MINES EMPLOYING MORE THAN TEN MEN.

MEDINA COUNTY.

Name of mine.	Kind of opening.	Name of owner or operator.	P. O. address.
Card Slope No. 3.....	Slope	Card Coal Co.....	Cleveland
Akron No. 2.....	Shaft	Akron Coal Co.....	Akron
Akron No. 4.....	Slope	"	"
Blondike.....	"	Hutchison Coal Co.....	Wadsworth

MINES EMPLOYING LESS THAN TEN MEN.

Name of owner or operator.	P. O. address.
Silver Creek Coal Co.....	Wadsworth
Cunningham Coal Co.....	"
Jonathan Harrison.....	"
D. P. Davis.....	Western Star
John Birkbeck & Sons.....	Wadsworth
Frank Reichard.....	Western Star

MINES EMPLOYING MORE THAN TEN MEN.

MEIGS COUNTY.

Name of mine.	Kind of opening.	Name of owner or operator.	P. O. address.
Peacock.....	Drift	Peacock Coal Co.....	Pomeroy
Coal Ridge.....	"	Coal Ridge Salt Co.....	"
Charter Oak.....	"	B. J. Malone & Co.....	"
Syracuse Shaft.....	Shaft	Syracuse Coal & Salt Co.....	Syracuse
Syracuse Slope.....	Slope	"	"
Minersville.....	Drift	D. S. Lewis.....	Pomeroy
Rolling Mill.....	"	Martin Ebersbach.....	"
King.....	"	Mrs. H. M. King.....	Middleport
Excelsior.....	"	Excelsior Salt Works.....	Pomeroy
Silver Run No. 2.....	"	Wm. Russell.....	Middleport
Bear.....	"	Woodward & Edwards.....	Pomeroy
Glendale.....	"	Kanawha Salt Co.....	Middleport
Rolling Mill No. 2.....	"	Martin Ebersbach.....	"
Buckeye Salt Co.....	"	Buckeye Salt Co.....	Pomeroy

MINES EMPLOYING LESS THAN TEN MEN.

MEIGS COUNTY—Concluded.

Name of owner or operator.	P. O. address.
Kauff Bros.	Middleport
James M. Roush	Pomeroy
Eli Roush & Sons	Minersville
Wm. Carr	"
G. Bentz	Pomeroy
George Baer	Minersville
Jesse Venibel	Pomeroy
John J. Williams	Minersville
Wm. Fick	Middleport
Jerry Smith	Rutland
N. Bryne	"
W. J. Lanning	"
S. D. Hogue	"
John Rupe	"
Thomas Headley	Middleport
O. L. Bradford	Pomeroy
John Hitchins	Minersville
J. W. Natross	Middleport
George Thompson	"
Peter Brechtel & John Proida	"

MINES EMPLOYING MORE THAN TEN MEN.

MUSKINGUM COUNTY.

Name of mine.	Kind of opening.	Name of owner or operator.	P. O. address.
Princess	Drift	McCoy Coal Co.	Zanesville
East Hill	"	A. D. Morrison	Stovertown
Chestnut Valley	"	Michael Fisher	Zanesville
Garrett	"	Joseph Garrett	Philo
Blue Rock	Slope	Blue Rock Coal Co.	Cedar Run
Diamond No. 2	Drift	C. W. Joslin & Co.	Zanesville
Werner No. 3	Shaft	W. A. Werner	"
Weller	Drift	W. H. Weller	"
Lehew	"	George M. Lehew	"
Harpers 3 Ft.	"	Eben Harper	"
Cannelville	"	McNally Coal Co.	Dillon
Granger	"	Siler Coal Co.	McConnellsville
Maynard	"	Maynard Bros.	Columbus
Eagle	"	R. G. Thompson	White Cottage

MINES EMPLOYING LESS THAN TEN MEN.

MUSKINGUM COUNTY—Continued.

Name of owner or operator.	P. O. address.
W. L. Combs	Zanesville
Joseph Pursell	"
J. W. Severance	"
Chas. A. Barton	"
Chas. L. Schultz	"
John McNulty	"
N. F. Swank	"
August German	"
C. W. Fisher	"
Wm. Uphold	"
Joseph Jamison	Dresden
Samuel Stuller	"
Zed Lingo	Frazeysburgh
John Harper & Son	"
Frank Cullins	"
James Knight	"
Milton Griffin	Dresden
T. F. Billman	"
James Butler	"
F. H. Egbert	"
Chas. Hock	Philo
J. L. Gyer & Sons	Norwich
M. N. Johnson	"
C. P. Walker	Otsego
Thos. Bell, Jr.	"
W. R. Jackson	"
W. R. Buker	"
James Hamilton	"
J. P. Johnson	Norwich
James Alexander	Zanesville
John G. Baughman	Roseville
Robert Wallace	"
Frank Dick	Coaldale
Porter Bros.	"
M. W. Campbell	Hopewell
Isaac Sellars	"
Wm. Dick	"
John Morgan	Dillon
J. C. Davis	Zanesville
J. W. McCormick	Ellis
A. W. Smith	"
Edgar Dickison	"
W. H. Blaney	Dillon
Adam Sloan	"
Ewing Fletcher	Dresden
Eli Gourley	Frazeysburgh
Abe Emery	Zanesville
J. W. Andrews	"
Robert Tumblin	"
Spence & Allen	"
Arthur Potts	"
David Hinke	"
Christain Niebel	"
Henry Spink & Robert Fowler	"
J. A. Detenbeck	"
Wm. Dickson	"
G. W. Besser	"

MINES EMPLOYING LESS THAN TEN MEN—Concluded.

MUSKINGUM COUNTY—Concluded.

Name of owner or operator.	P. O. address
J. W. Foutch	Zanesville
John McNulty	"
Lewis Harper	"
Joseph Bridwell	"
Joseph Miles	"
Wm. Severance	"
Bridwell & Barton	"
Isaac Melvin	"
George Harper	"
John Lutz	"
J. R. Greiner	"
Perry Greiner	"
John Morgan	"
Wm. Houser	"
Wm. Temple, Sr.	"
Mourae Waxler	Philo
Cox & McConnell	Dillon
John W. King	Zanesville
Ralph Spencer	Dresden
D. L. Hopkins	Zanesville
Frank G. Swope	"
S. Varner	Hopewell
George Starkey	Coaldale
Greiner Bros.	Zanesville
Samuel McGee	Ellis
Frank Heebner	"
Frank Workman	Otsego
James Hamilton	"
G. F. Riney	"
C. C. Horner	Fazeysburg
W. F. Trimble	Otsego
Albert Casner	Dresden
Buckeye Pressed Brick Co.	Zanesville
V. H. Blackstone	Sago
Daniel Hock, Sr.	Philo
Wm. Cornell	Otsego
John Hagenhouse	Zanesville
N. T. Gant, Sr.	"
John German	"
James E. & W. C. Wigton	Roseville
Jast Higgins	"
W. S. Wilkins	Zanesville
C. W. James	"
Fountain & Rambo	"
Charles Guss	Dresden
Joseph Wigton	Roseville
Charles Farman	Fazeysburg
Arthur Hoover	Axline
Bill McCann	Fazeysburg
Spence McCann	"
Charles N. Bounds	"
G. W. Brown	Roseville

MINES EMPLOYING MORE THAN TEN MEN.

MORGAN COUNTY.

Name of mine.	Kind of opening.	Name of owner or operator.	P. O. address.
Rose Black Diamond	Drift Slope	Carding Bros. Rose Valley Coal Co.	Rose Farm "

MINES EMPLOYING LESS THAN TEN MEN.

MONROE COUNTY.

Name of owner or operator.	P. O. address.
J. W. Bruce	Aitch
J. W. Payne	"
Wm. Steel	Ozark
George Coats	Woodfield
S. B. Carlton	Jerusalem
Wm. Morris	Woodfield

MINES EMPLOYING MORE THAN TEN MEN.

NOBLE COUNTY.

Name of mine.	Kind of opening.	Name of owner or operator.	P. O. address.
Glenwood	Shaft	Glenwood Coal Co.	Cleveland

MINES EMPLOYING LESS THAN TEN MEN.

Name of owner or operator.	P. O. address.
J. W. Young	Sarahsville
T. P. Love	Flag
F. S. Behmer	Summerfield
David Vance	Stafford
I. R. Vance	"

MINES EMPLOYING LESS THAN TEN MEN—Concluded.

NOBLE COUNTY—Concluded.

Name of owner or operator.	P. O. address.
W. E. Day	Flag
Hugh Robinson	Stafford
Henry Miller	Fulda
S. J. McConnell	Mt. Ephraim
H. D. Miller	Flag
H. L. Moore & Asbery Moore	Perryopolis
King & Poling	"
J. B. Hupp	Berne
C. I. McKee	Caldwell
Smith & McWilliams	Sarahsville
Wm. McLaughlin	"
M. Archer	Enoch
Fletcher Markey	Stafford
John Daniels	Flag
Theo. Boyd	Ashton
D. R. Curtis	Flag
Willis Leisure	Berne
W. B. Yonally	Flag
Willie Bros	Mt. Ephraim
Okey & Ullman	Stafford
F. A. Pettay	Sarahsville
N. M. Meek	Summerfield
Crawford & Bowen	"
J. R. Smith	Berne
James Donolly	Wigville
Joseph Sparling	"
J. A. Franklin	"
D. O. Young	Summerfield
H. C. Hunter	Cumberland
Thomas Paisley	"
Thomas Simpson	"
Zedock Haney	"
Dorey Yost	Berne
R. J. Matheny	Enoch
Andrew Poling	Perryopolis
James E. Sullivan	McCleary
Mart Snod	Perryopolis

MINES EMPLOYING MORE THAN TEN MEN.

PERRY COUNTY.

Name of mine.	Kind of opening.	Name of owner or operator.	P. O. address.
	Drift	C. & H. C. & I. Co.	Columbus
	"	Troy Coal Co.	N. Straitsville
	Shaft	Sunday Creek Coal Co.	Columbus
	Slope	"	"
No. 8	Shaft	W. P. Rend & Co.	Chicago, Ill.
" 1	Drift	Upson Coal & Mining Co.	Shawnee
Grove No. 5	"	Beck Bros.	McLuney
" 6	Slope	"	"
Hollow No. 1	Drift	Wallace Coal Co.	Redfield
Hill " 2	"	"	"
	"	Turney, Jones & Co.	Columbus
	Shaft	"	"
No. 1	"	Congo Mining Co.	"
No. 2	"	"	"
y or Furnace No. 2	Slope	E. W. Lewis & Co.	Shawnee
nee Valley	Drift	Shawnee Valley C. & I. Co.	"
nton.	"	J. C. Hamilton	Dickson
ock or No. 20	Slope	Hemlock Mining Co.	Hemlock
Diamond No. 1	Drift	Black Diamond Coal Co.	N. Straitsville
Diamond No. 2	"	"	"
	"	Tague Bros. & Co.	Crooksville
or No. 2	"	Tague & Bennett	McLuney
	"	Crooksville Co'l & Sa'd Co	Crooksville
rescent	"	New Crescent Mining Co.	Roseville
	"	Essex Coal Co.	N. Straitsville
Valley	Slope	New Hamburg Coal Co.	N. Hamburg
	Drift	"	"
erative	"	Martin & Roan	N. Straitsville
one	"	Zanesville Coal Co.	Zanesville
	"	Ohio Coal & Cement Co.	Columbus
or 189	"	George Howe & Sons.	N. Straitsville
l No. 1	"	Bristol Coal Co.	Newark
l No. 2	"	"	"
ard	"	Saltillo Coal Co.	Columbus
dale New	"	M. Meenan	Lyonsdale
ior.	"	Superior Coal Co.	Glouster
is	"	A. P. Simons	Redfield
5	"	Padden & Fahey	N. Straitsville
oint No. 1	"	Iron P't Low Vein Co'l Co	Shawnee
Hill	Slope	J. G. Underwood	Rose Farm
	Drift	Taylor, Willia's & Jenkins	Shawnee
ck	Shaft	Roberts & Davis	Hemlock
nut Hill No. 2	Drift	Coyle Coal Co.	Redfield

MINES EMPLOYING LESS THAN TEN MEN.

PERRY COUNTY—Concluded.

Name of owner or operator.	P. O. address.
Brown & Sowers	Crooksville
Ohio Mining and Manufacturing Co.	Shawnee
J. H. Davis	Redfield
Pearly Smith	Junction City
Michael Carney & Sons	New Lexington
A. J. Yost	Somerset
Tom Green	"
Mark Smith	"
W. E. Fink	"
Lewis Flowers	"
John Green	Junction City
George Parker	New Lexington
John W. Fair	"
Albert Thatcher	"
George Edley	N. Straitsville
George Howe	"
White & Thompson Coal Co.	"
Stewart & Co.	"
J. C. Faine	"
Hart Coal Co.	Burr Oak
Call, Hughes & Co.	N. Straitsville
Alexander & Co.	"
Fahey Coal Co.	"
M. Wilson & Co.	"
Joseph Welland.	New Lexington
Ambrose Gibbs	N. Straitsville
Mathew Cox & Co.	"
Crawford, Gaver Bros. & Co.	McCuneville
Spencer & Hazleton	N. Straitsville
Emerick Bros.	"
James O'Donnell	"
Watkins Coal Co.	"
Fred Corder	Somerset
W. C. North	Rehoboth
Thomas Phillips	Shawnee
Beck & Poling	Rose Farm
Samuel McKeever	Crooksville
John Bell	Hancock
Wm. McCormick	"
J. D. Brown	"
John Bowman	Maxville
George Danison	"
J. C. Wilson	Crooksville
Harry Ross	"

MINES EMPLOYING MORE THAN TEN MEN:

PORTAGE COUNTY.

Name of mine.	Kind of opening.	Name of owner or operator.	P. O. address.
Hutson No. 1	Shaft	Hutson Coal Co.	Cleveland
" 2	"	"	"
" 4	"	"	"
" 5	"	"	"

MINES EMPLOYING LESS THAN TEN MEN.

Name of owner or operator.	P. O. address.
Roberts & Jenkins	Palmyra

MINES EMPLOYING MORE THAN TEN MEN.

SCIOTO COUNTY.

Name of mine.	Kind of opening.	Name of owner or operator.	P. O. address.
Lock Ore	Drift	Means, Kyle & Co.	Hanging Rock

MINES EMPLOYING LESS THAN TEN MEN.

Name of owner or operator.	P. O. address.
Walker E. Marsh	Elfort
John North	Gervais
James Skelton	New Boston
Isaac Bennington	Lyra
John Miller	"
Sam Cadot	"

MINES EMPLOYING MORE THAN TEN MEN.

STARK COUNTY.

Name of mine.	Kind of opening.	Name of owner or operator.	P. O. address.
Willow Spring	Drift.	Ridgeway, Burton & Co.	Massillon
Hern Brook	Shaft	" "	"
South Massillon	"	" "	"
North Massillon	"	" "	"
Fallor	"	" "	"
Rose Hill No. 2	Drift.	Howells Mining Co.	"
New Greenville	Shaft	"	"
Elm Run No. 3	"	Mass'n Elm Run Coal Co.	"
Upper Pigeon Run	"	Warwick Coal Co.	"
Warwick	"	"	"
Minglewood Shaft	"	James Mullins	Wooster
Minglewood Slope	Slope	"	"
Singer	Shaft	"	"
Bookwalter or No. 8	"	"	"
Millport No. 2	"	Millport Coal Co.	Massillon
Camp Creek	"	O. Young Coal Co.	Cleveland
Clover Hill	"	Fox Lake Coal Co.	"
West Massillon No. 3	"	West Massillon Coal Co.	Massillon
Summit Hill	Drift.	L. E. Smith	Greentown
Western Ohio No. 1	Shaft	West Lebanon Coal Co.	Massillon
Lake Erie No. 2	Drift	Monongahela or Lake Erie Coal Co.	Cleveland
Davis	Shaft	Evan S. Davis	Alliance
Fox Run	Slope	Block Vein Coal Co.	Canton
Pleasant Valley	Drift.	Pleasant Valley Coal Co.	Alliance
Wainwright or Woodland	Shaft	Massillon-Cleveland Coal Co.	Massillon
Stanwood	"	E. G. Krause & Co.	Cleveland
Central	"	Central Coal Co.	Massillon
Albert Ball	Drift	L. L. Sheatzley	"
Nutwood	Shaft	Nutwood Coal Co.	"
Young Shaft	"	Pocock Coal Co.	"
Massillon Standard	Drift	Massillon Standard Coal Co.	Navarre
Canton Stoneware	"	Canton Stoneware Co.	Canton
Tressell	"	L. R. Tressell Coal Co.	"
Crystal Springs	Shaft	Crystal Springs Coal Co.	Massillon
Drake	"	Drake Coal Co.	Cleveland

MINES EMPLOYING LESS THAN TEN MEN.

STARK COUNTY—Concluded.

Name of owner or operator.	P. O. address.
l Coal Co.	Newman
dick.	Alliance
tson.	Marchand
Rice.	Alliance
Osnaburgh B. & T. Co.	Osnaburgh
non	Canton
rgb Brick & Clay Co.	Waco
tner.	Waynesburgh
& Kitzmiller.	Osnaburgh
es.	Waco
ith.	"
own.	New Berlin
n.	Osnaburgh
ith.	Louisville
enstein.	Osnaburgh
s.	"
ark.	"
uvenin.	Waco
Kramer.	"
fin.	"
tin.	Mapleton
ght.	Robertsville
r.	Osnaburgh
hards.	North Industry
essed Brick Co.	Canton
m.	Mapleton
stgarth.	Magnolia
Beasecker.	New Berlin
d.	North Industry
s.	Crystal Springs
nerville.	New Franklin
Hayman.	Myers Sta ion
per.	Howenstine
nser.	Alliance
ick & Sons	Waynesburgh
Varstler.	Marchand
egrain.	Canton
sh.	North Industry
mons.	Minerva
r.	Canal Fulton
ser.	Osnaburgh
lowen.	"
mer.	Waco
Bros.	"
er.	"
nith.	Paris
arta Brick Co	Pierce
Tile Co	Louisville
n.	Barryville

MINES EMPLOYING MORE THAN TEN MEN.

SUMMIT COUNTY.

Name of mine.	Kind of opening.	Name of owner or operator.	P. O. address.
Turkey Foot	Shaft	Brewster Coal Co	Akron
Pleasant View	"	Robert Adams	Cuyahoga Falls
Fox Lake	"	Fox Lake Coal Co	Cleveland

MINES EMPLOYING LESS THAN TEN MEN.

Name of owner or operator.	P. O. address.
Thomas Coal Co	Cuyahoga Falls
Lewis John	Nimisila
Hametown Retail Coal Co	Hametown
Thomas & Dodd	Tallmadge
Wm. H. Wilson	Akron
George A. Rex & Sons	Reservoir
Johnson Coal Co	Nimisila
D. P. Davis	Western Star
Alfred Middleton & Son	Barberton
Joseph Whittacer	Inland

MINES EMPLOYING MORE THAN TEN MEN.

TRUMBULL COUNTY.

Name of mine.	Kind of opening.	Name of owner or operator.	P. O. address.
Keel Ridge	Drift	Keel Ridge Coal Co	Sharon, Pa.
Mazey	Slope	J. V. Rose	"
Applegate	Shaft	Witch Hazel Coal Co	Youngstown

MINES EMPLOYING LESS THAN TEN MEN.

TRUMBULL COUNTY—Concluded.

Name of owner or operator.	P. O. address.
ws & Walters	Hubbard
Lum	Sharon, Pa.
Evans & Son	"
d Bros	Mineral Ridge
Bros	"
Edwards	Coalburg
& Stevenson	Brookfield
Moore & Son	"
Jones	Coalburg

MINES EMPLOYING MORE THAN TEN MEN.

TUSCARAWAS COUNTY.

Name of mine.	Kind of opening.	Name of owner or operator.	P. O. address.
dale North	Drift	Somerdale Coal Co.	Somerdale
dale East	"	"	"
dale No. 2	"	"	"
ts No. 1	"	H. S. Odbert	Cleveland
ts No. 2	"	"	"
ts No. 3	"	"	" [phia
n No. 2	"	Goshen Coal Co.	New Philadel-
No. 1	"	Midvale Goshen Min'g Co	Massillon
Hill No. 3	"	"	"
le No. 2	"	"	"
wrights No. 4	Slope	"	"
wrights No. 5	"	"	"
Hill	Drift	Wm. R. Jones	Zoar Station
Side	"	C. E. Holden	Mineral Point
"	"	G. J. Markley	"
Run	"	Ridgeway, Burton & Co.	Massillon
n	"	H. C. Minnich	Tuscarawas
l Slope	Slope	Tunnel Mining Co.	Mineral Point
l No. 6	Drift	"	"
"	"	Mason Bros	Canal Dover
Ridge	"	C. J. Nungesser	Beidler
Grove	"	Schindler Bros	Tuscarawas
orn	"	Buckhorn Coal Co	Cleveland
"	"	Dover Coal Co	Canal Dover
lon-Peacock	"	E. Van Kirk C. & M. Co	Mineral Point
City	"	Dennison Coal Co.	Dennison
"	"	Lobby Coal Co.	Mineral Point
Out	"	George J. Markley	"
ort	"	Erhart Coal Co.	Massillon
"	"	Swan Coal Co.	Canton
Creek	"	Shanesville Coal Co.	Shanesville
oshen No. 1	"	East Goshen Coal Co	Cleveland
n	"	Gordon Coal Co.	Massillon

MINES EMPLOYING LESS THAN TEN MEN.

TUSCARAWAS COUNTY—Concluded.

Name of owner or operator.	P. O. address.
J. A. Horn.....	Canal D
Joseph Shilling.....	"
John Lantzer.....	"
Winifred Skeels.....	Dennison
Buckeye Fire Clay Co.....	Uhrichs
Uhrichsville Fire Clay Co.....	"
Diamond Fire Clay Co.....	"
George W. Kail.....	Canal D
Newcastle Coal Co.....	N. Philips
Crown Fire Brick Co.....	Canal D
Ed. Leiser.....	Blakes 1
Joseph Boon.....	N. Philips
John Rogers.....	Blakes 1
Tuscarawas Railroad Co.....	N. Philips
Seward English.....	"
George Mathias.....	"
Thos. Steel.....	Blakes 1
Edward Menne.....	Canal D
Thos. Crocker & Co.....	Uhrichs
J. W. Fetter.....	"
M. Goddard.....	"
Cyrus Kilpatrick.....	Tracey
Benjamin Beans.....	Barn Hill
David Dunlavey.....	Uhrichs
C. R. Shipton.....	"
Advance Fire Clay Co.....	"
Clover Hill Coal Co.....	Somerda
John Wilcoxon.....	Uhrichs
John Oliver.....	Dennison
Peter Reeves.....	Canal D
Robert Sewell.....	"
Perry Storksedale.....	"
Wm. Krantz.....	"
Pennsylvania Iron & Coal Co.....	Black B
Howell Williams.....	Midvale
Henry Miller.....	Blakes 1
Ernest Haneter.....	Strasburg
The Zoar Society.....	Zoar
Harvey Gibbs.....	Canal D
Joseph T. Patten.....	"
Fred Ransch.....	N. Philips
John Dunn.....	"
Edward Burtcher.....	"
John Campbell.....	"
W. W. Norris.....	Newcom
Lawhead & Tufford.....	"
McClelland Wardle.....	Strasburg
C. E. Warner.....	Blakes 1
W. M. Wolchinger.....	Beech C
Jacob C. Baker.....	Bolivar
Gustav Kinzle.....	"
J. E. Murray.....	Canal D
Oak Grove Coal Co.....	Somerda
Benjamin Neff.....	Sugar C
Lewis Limbaugh.....	N. Philips
Joseph A. Scott.....	Uhrichs
B. L. Grim.....	N. Philips

MINES EMPLOYING MORE THAN TEN MEN.

VINTON COUNTY.

Name of mine.	Kind of opening.	Name of owner or operator.	P. O. address.
Elko	Shaft	Elko Coal Co.	Vinton Station
Star No. 2	Drift	Star Coal Co.	Hawks
Inghams	"	Ingham Coal Co.	Mineral
Raccoon	"	John L. Lawler	Minerton
Hanging Rock	Shaft	Hanging Rock Coal Co.	Chicago
Oreton	Drift	Eagle Coal Co.	Oreton
Heasly New	"	Hezekiah Heasly	Zaleski

MINES EMPLOYING LESS THAN TEN MEN.

Name of owner or operator.	P. O. address.
Smith Bros	McArthur
E. T. Winters	"
Gillman & Ward	"
Henry Robinett	"
Chas. Brown	"
Benjamin Newlun	"
John Blore	Radcliffe
Hamden Furnace Co	Hamden Junct.
Devault & Sons	Minerton

MINES EMPLOYING MORE THAN TEN MEN.

WASHINGTON COUNTY.

Name of mine.	Kind of opening.	Name of owner or operator.	P. O. address.
Felix	Slope	James Hickman	Coal Run

MINES EMPLOYING LESS THAN TEN MEN.

WASHINGTON COUNTY—Concluded.

Name of owner or operator.	P. O. address
Ross & Barker.....	Coal Run
Hickman, Cowell & Henderson.....	"
Henry Ball.....	"
Ralph Dobbins.....	Lowell
Dobbins & Smith.....	"

MINES EMPLOYING MORE THAN TEN MEN.

WAYNE COUNTY.

Name of mine.	Kind of opening.	Name of owner or operator.	P. O. address
Howells.....	Shaft	Howells Mining Co.....	Massillon
Wayne.....	Slope	Wayne Coal Co.....	Wadsworth

MINES EMPLOYING LESS THAN TEN MEN.

Name of owner or operator.	P. O. address
Baysinger & Duncan.....	Doylestown
Seiberling & Miller.....	"
J. H. Morgan.....	Frederickabu

FIRE CLAY MINES OF OHIO.

Name of firm.	P. O. address.
ATHENS COUNTY.	
Nelsonville Sewer Pipe Co.	Nelsonville
East Clayton Clay Manufacturing Co.	"
Athens Brick Co.	Athens
Wassall Fire Clay Co.	Columbus
BELMONT COUNTY.	
George O. Robinson.	Bellaire
CARROLL COUNTY.	
Minerva Paving Brick Co.	Minerva
Canton & Malvern Fire Brick & Paving Co.	Canton
Beattie Fire Clay Co.	Magnolia
Malvern Fire Clay Co.	Malvern
The Myers-Hartford Clay Co.	"
Standard Pottery Co.	Salineville
COLUMBIANA COUNTY.	
Globe Pottery Co.	East Liverpool
F. P. Wherry.	"
Michael Murphy.	"
Knowles, Taylor & Anderson.	"
John Wooster.	Wellsville
Vulcan Clay Co.	Vulcan
John Lythe & Sons.	Wellsville
Buckeye Brick Works Co.	"
Union Fire Clay & Stone Co.	Lisbon
Excelsior Fire Clay Co.	"
Keystone Fire Clay Co.	"
S. Y. Howell.	Salem
Charles Walters.	"
N. U. Walkers Clay Manufacturing Co.	Walkers
The Furnace Fire Clay Co.	Salineville
Wm. A. Ward.	East Palestine
The Ohio Vitriified Pipe Co.	Lisbon
Kirk & Vasey.	Salineville
Champion Fire Brick Co.	Wellsville
Gross & Heestand.	Homeworth
Charles March.	Calcutta
C. W. Barrett.	"
Quaker Valley Pottery Co.	Rogers
Columbia Fire Clay Co.	Cleveland
James Mullins.	Wooster
HOCKING COUNTY.	
Haydenville Mining & Manufacturing Co.	Haydenville
Columbus Brick & Terra Cotta Co.	Columbus
Parley Phelps.	Gore
Hocking Clay Manufacturing Co.	Logan
Logan Fire Clay Co.	"
Wm Schindler.	Longstreth
Leroy Kemper.	Gore
Joe Barthlow.	Logan
Logan Granite Fire Brick Co.	"

FIRE CLAY MINES OF OHIO—Continued.

Name of firm.	P. O. address
HOLMES COUNTY.	
Millersburgh Brick & Tile Co.	Millersburgh
David Miller	Mt. Hope
Redett & Co.	Fredericksburg
JACKSON COUNTY.	
Oak Hill Fire Brick and Coal Co.	Oak Hill,
Aetna Fire Brick Co.	"
Jefferson Furnace Co.	"
JEFFERSON COUNTY.	
Empire Fire Clay Co.	Empire
Minor Fire Clay Co.	"
Stratton Bros.	"
Freeman Fire Clay Co.	Freeman Sta
Excelsior Sewer Pipe Works.	Calumet
Calumet Fire Clay Co.	"
Ohio Valley Fire Clay Co.	Toronto
Gt. Western Fire Clay Co.	"
Kennedy, Kling & Co.	"
John Francey Sons Co.	"
Island Siding Fire Clay Co.	"
Wm. Downer	Irondale
Toronto Fire Clay Co.	Steubenville
LAWRENCE COUNTY.	
George Griffith.	Ironton
Thos. Myers.	"
Means, Kyle & Co.	Hanging Ro
E. B. Willard & Co.	Steece
MAHONING COUNTY.	
Youngstown Paving Brick Co.	Beloit
Greenford Fire Clay Co.	Greenford
Robert Auld	Salem
J. C. Devine.	Garfield
E. C. Walters.	Poland
M. J. Dustman	North Bento
George Buzard	East Lewist
Chas. Walters.	Salem
MUSKINGUM COUNTY.	
Wm. Dilts.	Roseville
Pace Bros. & Co.	"
Chauncey Ford	"
Gilbert Russell & Son.	"
Harris Brick Co.	Zanesville
Oakland Press Brick Co.	"
J. B. Owens Pottery Co.	"
Lane, Paving Brick Co.	"
Abram Emery.	"
South Zanesville S. P. & B. Co.	"
W. B. Lowry.	Roseville

FIRE CLAY MINES OF OHIO—Continued.

Name of firm.	P. O. address.
MUSKINGUM COUNTY—Concluded.	
Buckeye Press Brick Co.....	Zanesville
S. M. Stump.....	Ellis
Wm. Bunting.....	"
George Melhollin.....	Hopewell
C. C. Crabtree.....	Ellis
PERRY COUNTY.	
Burley, Winter & Co.....	Crooksville
Diamond Stoneware Co.....	"
Buckeye Stoneware Co.....	Buckeye Cott'ge
W. A. Bradshaw.....	"
Solomon Hightshoe.....	Somerset
G. H. Moore.....	Crooksville
J. J. Brown.....	"
Samuel McKeever.....	"
New Lexington Pressed Brick Co.....	New Lexington
Ohio M. & M. Co.....	Shawnee
A. J. Halsey.....	Crooksville
Mike Gossman.....	"
Noah Stoneburner.....	"
H. E. Stoneburner.....	"
G. W. Pyle.....	Moxahala
J. C. Sowers.....	Crooksville
George Wilson.....	Roseville
American Sand Co.....	Columbus
Marion Allen.....	Roseville
Charley Brown.....	"
SCIOTO COUNTY.	
Scioto Star Fire Brick Works.....	Portsmouth
Webster Fire Brick Co.....	South Webster
Scioto Fire Brick Co.....	Sciotoville
Means, Kyle & Co.....	Hanging Rock
Ketter Bros.....	Lilley
Crist Hassalman.....	"
STARK COUNTY.	
Waynesburgh Brick and Clay Co.....	Waynesburgh
Royal Brick Co.....	Canton
Canton Pressed Brick Co.....	"
Canton and Osnaburgh Brick and Tile Co.....	"
Imperial Shale Brick Co.....	"
Rev. J. H. Harrier.....	N. Industry
Block Vein Coal Co.....	"
Massillon Stone and Fire Brick Co.....	Massillon
H. B. Camp Co.....	Aultman
Riley Newhouse.....	Magnolia
Canton Stoneware Co.....	Canton
Miskler Pottery Co.....	"
J. B. Hoover.....	Alliance
Walker-Cook Co.....	Pierce
Louisville Brick and Tile Co.....	Louisville
Empire Clay Co.....	"
Champion Tile Co.....	"
Wm. Powell Brick Co.....	Massillon

FIRE CLAY MINES OF OHIO—Concluded.

Name of firm.	P. O. address.
SUMMIT COUNTY.	
Whitmore-Robinson Co.....	Akron
Hill Sewer Pipe Co.....	"
Akron Sewer Pipe Co.....	"
Buckeye Sewer Pipe Co.....	"
E. H. Merrill Co.....	"
A. J. Weeks.....	"
Myers & Hall.....	Mogadore
W. J. Webb.....	"
Reuben Swineheart.....	Britton
I. Madlem.....	N. Springfield
J. Stetler.....	"
Webb Clay Co.....	Akron
Harry Thompson.....	Cuyahoga Falls
J. C. Ewert & Co.....	Akron
Robison Bros. & Co.....	"
TUSCARAWAS COUNTY.	
Diamond Fire Clay Co.....	Uhrichsville
Uhrichsville Fire Clay Co.....	"
Buckeye Fire Clay Co.....	"
J. J. Masurie.....	"
Advance Fire Clay Co.....	"
Crown Fire Clay Co.....	Canal Dover
Dover Fire Brick Co.....	Strasburg
C. E. Holden.....	Mineral Point
American Fire Brick Co.....	"
J. J. Cristner & Sons.....	Baltic
C. H. Conway & Co.....	N. Philadelphia
Navarre Stoneware Co.....	Navarre
Paul Clay Co.....	Akron
TRUMBULL COUNTY.	
J. V. Rose.....	Sharon, Pa.
VINTON COUNTY.	
Rambo & Honnold.....	Hue
Jacob Earnheart.....	"

IRON ORE MINES IN OHIO.

Name of firm.	P. O. address.
JACKSON COUNTY.	
Tropic Furnace Co.....	Jackson
Globe Iron Co.....	"
Clare, Duduit & Co.....	Remple
LAWRENCE COUNTY.	
Hecla Iron and Mining Co.....	Hecla
Campbell Iron Co.....	Campbell
McGugin & Co.....	Olive Furnace
Lawrence Furnace Co.....	Culbertson
Vesuvius Furnace Co.....	Pedro
E. B. Willard.....	Steece
Means, Kyle & Co.....	Hanging Rock
Halley & Wells.....	Pedro
SCIOTO COUNTY.	
Clare Iron Co.....	Bloom Switch
Walker E. Marsh.....	Elfort

LIMESTONE QUARRIES IN OHIO.

Name of firm.	P. O. address.
ADAMS COUNTY.	
John McNeilan.....	West Union
R. J. Kinkead.....	"
H. T. Hurdman.....	Locust Grove
Joseph Hart.....	Emerald
Thompson Edwards.....	Wilson
L. S. Rice.....	Portsmouth
W. A. Copes.....	West Union
J. H. Ellison.....	Manchester
J. W. Sulters.....	May Hill
Samuel Hopkins.....	Manchester
Frank Nixon.....	West Union
ALLEN COUNTY.	
H. S. Sanford.....	Lima
E. F. Davis.....	"
David Joseph.....	"
Tetter & Sons.....	"
Frank Roush.....	"
Edward Gray.....	"
J. W. Long.....	Cranberry
Patterson Bros.....	Ada
I. C. Marsh.....	Herring
Watt Bros.....	"
Staley & Dickason.....	"
Siddall & Amstutz.....	Bluffton
G. F. Greenwald.....	"

LIMESTONE QUARRIES IN OHIO—Continued.

Name of firm.	P. O. address.
ALLEN COUNTY—Concluded.	
J. C. Steiner	Bluffton
Conrad Tripplehorn	"
Mollett Bros.	"
E. J. Ford & Bro.	Scotts Crossing
D. T. Jones & Co.	Vendocia
J. C. Ford	Delphos
Aaron Fisher	"
Allen Joseph	Lima
Wm. Pugh	"
BUTLER COUNTY.	
John Killfoyle	Hamilton
D. M. Shely	"
J. B. Scott	"
G. Kuentzle	"
Nelson Good	Trenton
Samuel Augspur	Woodsdale
Jacob Nickel	Excelllo
R. J. Livingston	Simms Corners
W. H. McCurley	Ross
Daniel Pabst	Hamilton
CLARK COUNTY.	
Moore & Co.	Cold Springs
S. Casperis Stone Co.	Columbus
Ambrose Petticrew	Springfield
Samuel S. Taylor	"
Mills Bros.	"
Moore Lime Co.	"
J. W. Jenkins	"
W. A. Rubson	"
Daniel Baker	Enon
CLERMONT COUNTY.	
J. W. McKibben	Clermontville
George W. Behymer	Amelia
Wm. Frazey	Bethel
Wm. Hanna	"
Charles Salts	Point Pleasant
M. McClave	Loveland
S. McClave	"
J. D. Sorrel	"
G. F. Kanubb	Point Pleasant
Charles Helmering	New Richmond
Henry Harlow	Marathon
E. Hulick	Owensville
CRAWFORD COUNTY.	
Frank Snavelly	Osceola
Joseph Snavelly	"
Mrs. Elizabeth Jones	Bucyrus
A. J. Brown	Lykens
Ben Zelner	"
Charles Relf	Spore

LIMESTONE QUARRIES IN OHIO—Continued.

Name of firm.	P. O. address.
CLINTON COUNTY.	
bb	Wilmington
rs	"
	"
	"
nlehr	"
	"
	New Vienna
by	Lumberton
	Port Williams
	Wilmington
gsworth	Kingsman
	"
	Wilmington
is	New Vienna
	Midland
	West Woodville
	"
DELAWARE COUNTY.	
ll	Delaware
is	"
on	"
rd	Warrenburg
dith	Radnor
nt	Rathbone
	"
is	Powell
s	Delaware
	Warrenburg
bury	Powell
DARKE COUNTY.	
	Gettysburg
	Weaver's Sta.
ett	Louisburg
ERIE COUNTY.	
apple	Sandusky
	"
	"
ne Co	"
ger	"
Line and Transport Co	Cleveland
ner	Sandusky
	Sand Hill
Ramsdell	"
FRANKLIN COUNTY.	
	Columbus
ne Co	"
te Co	"
g	Marble Cliff

LIMESTONE QUARRIES IN OHIO—Continued.

Name of firm.	P. O. address.
FRANKLIN COUNTY—Concluded.	
J. M. McNinch.....	Columbus
Wm. Lamb.....	Dublin
J. C. Thompson.....	"
James Rumsey.....	"
N. Scofield.....	Hilliards
GREENE COUNTY.	
Mary J. Archer.....	Zimmerman
D. S. Irwin Co.....	Cedarville
John B. Taylor.....	"
Boots, Bickett & Conklin.....	New Jasper
J. C. Tolan.....	Jamestown
Owen Stutsman.....	Yellow Springs
Joseph Smith.....	Wilberforce
HAMILTON COUNTY.	
Ludwig Grower.....	Cincinnati
Ernest Howe.....	"
John Zink.....	"
City Workhouse.....	"
Benjamin Cooney.....	"
Henry Stagg & Sons.....	"
John Goodman.....	"
Matthew Slatterly.....	"
Arthur W. Davis.....	"
F. E. Weihe.....	Carthage
W. Manschunyer.....	Pleasant Ridge
J. K. Holloway.....	Silverton
Chas. M. Fields.....	Glendale
Jacob Weber.....	Carthage
Sisters of the Good Shepherd.....	"
Cincinnati & Westwood Railway Co.....	Cincinnati
Rucker Stone Co.....	Greenfield
Grant Bros.....	Cincinnati
John B. Clark.....	Sweet Wine
G. C. Hutchison.....	Silverton
Dr. Krieger.....	Madisonville
Fred Stegemoller.....	Oakley
A. B. Wilson.....	College Hill
Nicholas Reubel.....	Cheviot
Ernest Zaeske.....	"
Thos. S. King.....	Cincinnati
W. R. Moore.....	"
C. S. Boone.....	Millford
Robert Armstrong.....	Cincinnati
HANCOCK COUNTY.	
J. W. Wells & Son.....	Findlay
Mrs. E. Hirscher.....	"
Isaac Hirshey.....	"
West Park Lime and Stone Co.....	"
Wm. Norris.....	"
John Essenger & Co.....	Arlington
Jacob Heldman.....	Jenera

LIMESTONE QUARRIES IN OHIO—Continued.

Name of firm.	P. O. address.
HANCOCK COUNTY—Concluded.	
& Launder Bros.....	Arlington
man.....	Rawson
le.....	"
& Powell.....	Findlay
Lime and Stone Works.....	"
y.....	Carey
ros.....	Ada
HARDIN COUNTY.	
sell.....	Ada
one and Ballast Co.....	Dunkirk
thur & Co.....	Kenton
iley.....	N. Baltimore
onson.....	Dunkirk
zogg.....	Patterson
ros.....	Ada
HIGHLAND COUNTY.	
onberger.....	Greenfield
ie Co.....	"
p, Jr.....	Lynchburg
rman.....	Hillsboro
rton.....	Lynchburg
art.....	Shackelton
d.....	Emerald
r & Sons.....	Leesburg
ix.....	Fort Hill
on.....	Leesburg
shue.....	Hillsboro
p, Sr.....	Willitsville
	Sorg
	Lynchburg
HOLMES COUNTY.	
d.....	Millersburgh
er.....	"
ican.....	"
HARRISON COUNTY.	
	Alton
LAWRENCE COUNTY.	
rd & Co.....	Ironton
and Mining Co.....	"
e & Co.....	Hanging Rock
irnace Co.....	Pedro
urnace Co.....	Culbertson
Co.....	Olive Furnace
y.....	Ironton
	"
	Steece
ells.....	Pedro

LIMESTONE QUARRIES IN OHIO—Continued.

Name of firm.	P. O. address.
LOGAN COUNTY.	
Bellefontaine Stone & Lime Co	Bellefontaine
John F. Cantwell	"
H. M. Brown & Son	Belle Centre
John L. Stratton	W. Middleburg
Jacob Platt	West Liberty
General A. S. Platt	"
H. D. Randall	"
D. B. Repogle	Belle Centre
LUCAS COUNTY.	
Thos. Henehan	Toledo
J. L. Pray & Son	White House
Stephen Brogan	"
George Zellar	Maumee
MARION COUNTY.	
The John Evans Lime and Stone Quarry Co	Marion
The Norris & Christian Lime and Stone Co	"
James G. Fairbank	"
Owens & Evans	Owens
Fred Hinamon	Marion
MIAMI COUNTY.	
Maxwell Stone Co	Ludlow Falls
F. M. Coppock	"
Joseph Kopp & Co	"
J. H. Attenweiler	Piqua
G. W. McCabe	"
D. C. Stalter & Co	"
The Ohio Marble Co	"
G. W. Butt	Covington
D. L. Face	"
J. W. Rule	"
C. B. Fletcher	"
August Burch	"
Levi Falkner	"
Chas. Hoover	"
Isaac Clapp	"
Oliver Nicodemus	North Clayton
S. M. McLaughlin	"
J. M. C. Dean	Brandt
Rex Marble Dust Co	Rex
Dave Circle	Ludlow Falls
Chas. Jackson	Covington
W. Youtsey	Troy
The Tipp Building and Manufacturing Co	Tippecanoe City
MONTGOMERY COUNTY.	
The Louis & Talbert Stone Co	Dayton
Wm. Huffman & Co	"
James Manual	Centreville
J. B. K. Stansel	"
D. P. Oram	Sulphur Grove

LIMESTONE QUARRIES IN OHIO—Continued.

Name of firm.	P. O. address.
MONTGOMERY COUNTY—Concluded.	
V. Barr	Dayton
Kimmell	"
Guld	"
Jullek	Trotwood
J. Jackson	Vandalia
Hoop	Sulphur Grove
Evans	Jamton
Jenges	"
Shaw	Union
Cartindale	"
Fortney	Germantown
Shafer	Dayton
Weaver	Farmersville
Yost	Dayton
Hay	Tyrmont
Shafer	Amity
Trautman	"
MUSKINGUM COUNTY.	
Mourin	Zanesville
Labtree	Ellis
Polin	Hopewell
Spaulding	Zanesville
Abel	"
Brooks	Dresden
Zanesville Sewer Pipe and Brick Works	S. Zanesville
MERCER COUNTY.	
Wagner	Fort Recovery
OTTAWA COUNTY.	
Regg	Genoa
Holt	"
Rowey	"
ledo White Lime Co	Toledo
and Rocky Ridge Lime Co.	"
ark Co	Clay Centre
eph Kingham	Rockey Ridge
n & Reiser	"
Island Lime and Transport Co	Cleveland
one Lime Co	Limestone
cher Lime Co	Sandusky
Duncan	Toledo
Fellerath	Marblehead
PAULDING COUNTY.	
Johnson	Junction
cDorman	Roselms
rey	Scott
dams	Oakwood
arpenter	Van Wert

LIMESTONE QUARRIES IN OHIO—Continued.

Name of firm.	P. O. address.
PICKAWAY COUNTY.	
George M. Stark.....	Harrisburgh
Mrs. Belle Z. McCoy.....	Circleville
PIKE COUNTY.	
G. W. Nace.....	Sinking Spring
PERRY COUNTY.	
David Hardy.....	Maxville
H. Houdyshell.....	"
PREBLE COUNTY.	
Jonathan Paxton & Son.....	College Corner
E. A. Ridenour.....	"
O. M. Wright.....	"
M. Hamilton.....	Hamilton
R. M. Hayes.....	Fair Haven
James Saylor.....	Eaton
James A. Kautz & Co.....	"
I. J. Weaver.....	Lewisburg
F. J. Wilson.....	"
John A. Elliott.....	Eaton
Nathan C. Sloane.....	Morning Sun
John Wright.....	College Corner
James White.....	Camden
Peter Foutz.....	"
Chester Elliott.....	Fair Haven
G. W. Mann.....	Morning Sun
Mathew Hamilton.....	College Corner
Farr & Nation.....	Eaton
Richard Danily.....	New Paris
John Bennett.....	West Elkton
Adolph Law.....	Jacksonboro
E. H. Marshall.....	Fair Haven
Fisher & Campbell.....	Eaton
Brannon, Hawkins & Marshall.....	New Paris
Noah Hill.....	West Alexan
PUTNAM COUNTY.	
John Diller.....	Pandora
John Briddenbaugh.....	"
Henry Hilty.....	"
H. W. Sackett.....	Ottawa
T. W. Thomas.....	Rimer
J. J. Guffy.....	"
J. B. Schuerman.....	Fort Jennings
Watt Bros.....	ColumbusGr
Laner & Yocklin.....	Ottoville
Chas. Alspack.....	Delphos
Samuel Myers.....	Cascade
J. B. Harmon.....	Gilboa
D. H. Showalter.....	ColumbusGr
Jacob Dickey.....	Dupont
George Mariott.....	"
W. H. Harmon.....	Dominton

LIMESTONE QUARRIES IN OHIO—Continued.

Name of firm.	P. O. address.
PUTNAM COUNTY—Concluded.	
ting.....	Fort Jennings
& Whorley.....	Pandora
P. Shumaker.....	ColumbusGrove
Kroft Bros.....	Ada
SANDUSKY COUNTY.	
n Bros.....	Fremont
Corser.....	"
er.....	"
reech.....	Bellvue
Limestone Co.....	Gibsonburg
Horning & Co.....	"
nkamp.....	Toledo
B. King.....	Fremont
Corser.....	"
Johnson.....	Genoa
SENECA COUNTY.	
France.....	Bloomville
& Geiger.....	"
Beiff.....	"
Fisher & Son.....	"
a White Lime Co.....	Kansas
ot.....	Tiffin
cher.....	"
ouder.....	"
ollum.....	"
y & Dozer.....	Fostoria
erty & Co.....	Toledo
& Harpster.....	Flat Rock
Detweiler.....	Bloomville
Armstrong.....	Republic
Baker.....	West Lodi
inis.....	Flat Rock
aul.....	Bloomville
SHELBY COUNTY.	
Etherington & Sons.....	Sidney
Dean.....	"
STARK COUNTY.	
ler Bros.....	Oval City
ine.....	Battleburgh
Druckenbrod.....	Middlebranch
Clapsaddle.....	Marlboro
Schweitzer.....	Canton
. H. Harrier.....	North Industry
n Holl.....	New Berlin
Druckenbrod.....	"
howalter.....	Pierce
nd Portland Cement Co.....	Middle Branch
Warstler.....	Oval City
: Seifert.....	Paris

LIMESTONE QUARRIES IN OHIO—Concluded.

Name of firm.	P. O. address
SCIOTO COUNTY.	
Clare Iron Co.	Bloom Swi
Walker E. Marsh	Eifort
M. Coe & Sons	Freestone
UNION COUNTY.	
C. H. Seely	Jerome
VAN WERT COUNTY.	
B. F. Leslie	Convoy
E. H. France	Bloomville
Wm. D. Semple	Van Wert
J. B. Carey	Scott
Dr. L. E. Sadd	Middleport
Ireland, Manship & Ridenour	"
Mrs. Alice Mann	Van Wert
WOOD COUNTY.	
Dougherty & Co.	Toledo
The Lime City Co.	"
N. B. Eddy & Co.	Luckey
Sugar Ridge Stone and Lime Co.	Sugar Ridge
Snowflake Lime Co.	"
D. P. Lloyd & Co.	Fostoria
J. B. Lucky	Stonyridge
Isaac Hufford	"
L. Strayer	Grand Rapids
Del Gilbert	Bowling Green
George E. Mercer	"
H. P. Meyer	Hammans
J. J. Taylor	"
A. G. Zellar	Stonyridge
F. W. Van Fleet	Bowling Green
M. Daum & Son	Carey
WYANDOT COUNTY.	
S. R. Houser	Upper Sandusky
A. W. Luzader	Adrian

MINING LAWS
OF THE
STATE OF OHIO,
WITH
LATEST AMENDMENTS.

Published by
ROBERT M. HASELTINE,
Chief Inspector of Mines.



Mining Laws of Ohio

INSPECTOR OF MINES.

SEC. 290. For the purpose of facilitating an efficient and thorough inspection of mines in Ohio, and to provide an adequate inspecting force therefor, the governor shall appoint, by and with the consent of the senate, one chief inspector, who, with the approval of the governor, shall appoint five district inspectors of mines; the chief inspector shall hold his office for the term of four years, and the district inspectors shall hold their office for the term of three years from the date of their appointment, and until their successors are appointed and qualified; the first appointments hereunder shall be made within thirty days from the date when this act shall take effect; and in case of the resignation, removal or death of the chief inspector, or any district inspector, the vacancy shall be filled in the manner above provided for original appointments for the unexpired term only, of the position so made vacant. No person shall be appointed chief inspector of mines unless he is possessed of a competent knowledge of chemistry, the geology of Ohio, and mineralogy, in so far as those sciences relate to mining, and has a practical knowledge of mining engineering, and the different systems of working and ventilating mines, and the nature and properties of the noxious and poisonous gases of mines, particularly fire damp, and of the best means of preventing and removing the same; and no person shall be appointed district inspector of mines unless he be a practical miner or at least five years' experience, and a resident of the district for which he is appointed, for at least two years, and is possessed of a practical knowledge of the best mode of working and ventilating mines, of the means of detecting the presence of bad or foul air, noxious and poisonous gases, and of the best means of preventing and removing the same.

Appointment of chief and district inspectors; who eligible.

SEC. 290a. That authority be and is hereby given to appoint two additional district inspectors of mines; and they shall be appointed in the same manner and possess the same qualifications and receive the same compensation as the five district inspectors of mines authorized by said Sec. 290. The term of office of the two district inspectors of mines herein provided for shall be three years, and they shall take an oath and give bond, as provided in Sec. 291 of the Revised Statutes of Ohio, and shall be subject to the regulations and requirements of the district inspectors authorized in said Sec. 290, as provided in chapter nine of the Revised Statutes of Ohio. The chief inspector of mines shall assign said additional inspectors for service in districts to be designated by him, and he is authorized to divide the state in seven districts, in each of which one of the district inspectors of mines shall reside.

Additional district inspectors.

Bond and
oath.

Sec. 291. Before entering upon the discharge of the duties of their respective offices, the chief inspector and district inspectors shall give bond to the state, the former in the sum of five thousand dollars, and the latter in the sum of two thousand dollars each; to be approved by the governor conditioned for the faithful performance of their duties, respectively; said bonds, with an oath of office on each, an approval of the governor indorsed thereon, shall be forthwith deposited with the secretary of state; the inspector while in office, shall not act as agent, manager or mining engineer for any operator, or in any way be interested in operating any mine.

Their powers
and duties.

Sec. 292. The chief inspector and district inspectors shall give their whole time and attention to the duties of their offices, respectively; it shall be the duty of the district inspectors to examine all the mines in their respective districts as often as possible, to see that all the provisions and requirements of this chapter are strictly observed and carried out; they shall particularly examine the works and machinery belonging to any mine, examine into the state and condition of the mines as to ventilation, circulation and condition of air, drainage and general security; they shall make a record of all examinations of mines in their respective districts, showing the date when made, the condition in which the mines are found, the extent to which the laws relating to mines and mining are observed or violated, the progress made in the improvement and security of life and health sought to be secured by the provisions of this chapter, the number of accidents, injuries received, or deaths in or about the mines, the number of mines in their respective districts, the number of persons employed in or about each mine, together with all such other facts and information of public interest concerning the condition of mines, development and progress of mining in their respective districts, as they may think useful and proper, which record shall, on or before the first Monday of every month, be filed in the office of the chief inspector, to be by him recorded, and so much thereof as may be of public interest, to be included in his annual report; in case of any controversy or disagreement between the district inspector and the owner and [or?] operator of any mine, or the persons working therein, or in case of conditions of emergencies requiring counsel, the district inspector may call on the chief inspector for such assistance and counsel as may be necessary; should the district inspector find any of the provisions of this chapter violated or not complied with, by any owner, lessee, or agent in charge of any mine, he shall immediately notify such owner, lessee or agent in charge, of such neglect or violation, and unless the same is, within a reasonable time, rectified, and the provisions of this chapter fully complied with, he shall institute a prosecution under the provisions of section six thousand eight hundred and seventy-one (6871) of the Revised Statutes. The inspectors shall exercise a sound discretion in the enforcement of the provisions of this act, and if in any respect (which is not provided against by, or may

result from a rigid enforcement of any express provisions of this chapter), the inspector find any matter, thing or practice in or connected with any such mine, to be dangerous or defective, so as, in his opinion, to threaten or tend to the bodily injury of any person, the inspector may give notice in writing thereof to the owner, agent or manager of the mine, and shall state in such notice the particulars in which he considers such mine, or any part thereof, or any matter, thing of [or?] practice to be dangerous or defective, and require the same to be remedied. For the purpose of making the inspection and examinations provided for in this section, the chief inspector and the district inspectors shall have the right to enter any mine at all reasonable times, by night or by day, but in such manner as shall not unnecessarily obstruct the working of the mine; and the owner or agent of such mine is hereby required to furnish the means necessary for such entry and inspection; the inspection and examination herein provided for shall extend to fire clay, iron ore and other mines, as well as coal mines.

SECT. 293. The chief inspector shall designate the counties or portions thereof in the state which shall compose the different districts, and may at any time change the same, when in his judgment the best interests of the service may require, and shall issue such instructions, make such rules and regulations for the government of the district inspectors, not inconsistent with the powers and duties vested in them by law, as shall secure uniformity of action and proceedings throughout the different districts; and he may order one district inspector to the assistance of any other district inspector, or make temporary transfers of district inspectors, when, in his judgment, the efficiency or necessity of the service demands or permits; and he may, with the consent of the governor, remove any district inspector at pleasure; the district inspectors are hereby invested with all the powers and authority of county auditors, as sealers of weights and measures in the different counties of this state, and for any service performed as such sealers they shall receive the same compensation as now provided by section ten hundred and sixty-two (1062) of the Revised Statutes; but said inspector shall exercise said authority in connection with weights and measures only at mines in their respective districts; the chief inspector shall render such personal assistance to the district inspectors as they, from time to time, may require, and shall make such personal inspection of the mines as he may deem necessary, and his other duties will permit; he shall keep in his office and carefully preserve all maps, surveys and other reports and papers required by law to be filed with him, and so arrange and preserve the same as shall make them a permanent record of ready, convenient and connected reference; he shall compile and consolidate the reports of district inspectors, and annually make report to the governor of all his proceedings, as well as those of the district inspectors, the condition and operation of the different mines of the state, and the number of mines and the number of persons employed in or about such mines, the

Districts, how made and changed.

Rules for district inspectors.

Power of chief over district inspectors.

Their powers as sealers of weights and measures.

Special duties of chief inspector.

His reports.

Mining operators to make certain report to him.

Penalty for their failure to make such reports.

Matters to be included in report of chief inspector.

Maps, plans of mines, etc., shall be kept in offices.

Salaries.

Instruments, etc., to be furnished inspectors.

amount of coal, iron ore, limestone, fire clay, or other mineral mined in the state; and for the purpose of enabling him to make such report, the owner, lessee or agent in charge of such mine, who is engaged in mining, and the owner, lessee or agent of any firm, company or corporation in charge of any fire clay, or iron ore mined [mine?] or any limestone, or quarry, or who is engaged in mining or producing any mineral whatsoever in this state, shall, on or before the 31st day of January in every year, send to the office of the chief inspector of mines, upon blanks furnished by him, a correct return specifying with respect to the year ending on the preceding 31st day of December, the quantity of coal, iron ore, fire clay, limestone, or other mineral product in such mine or quarry, and the number of persons ordinarily employed in or about such mine, or quarry, below and above ground, distinguishing the persons and labor below ground and above ground. Every owner, lessee or agent of a mine or quarry who fails to comply with this section, or makes any return which to his knowledge is false in any particular, shall be deemed guilty of an offense against this section, and shall be fined one hundred dollars, to be recovered at the suit of the chief inspector in the name of the state of Ohio; he shall also include in such report such facts relative to the mineral resources of the state and the development of the same, as shall, in his judgment, be of public interest; he shall enumerate all accidents, and the manner in which they occurred, in or about the mines, and give all such other information as he thinks useful and proper, and make such suggestions as he deems important, relative to mines and mining, and any other legislation that may be necessary on the subject for the better preservation of the life and health of those engaged in such industry.

SEC. 294. The chief inspector shall have an office in the state house, in which shall be carefully kept the maps and plans of all mines in the state, and all records, correspondence, papers, and apparatus and property pertaining to his duties, belonging to the state, and shall be handed over to his successor in office; the district inspectors shall keep their offices in such place in their respective districts as will be most central and convenient to the mining region of their respective districts, and shall keep and preserve in their offices all maps, plans, surveys, and other papers belonging to their offices, in such manner as shall be of easy access and convenient reference to persons entitled to examine them. The district inspectors shall receive an annual salary of twelve hundred dollars (\$1,200) per annum, and the chief inspector shall receive the same salary as is now provided for inspector of mines under section twelve hundred and eighty-four of the Revised Statutes.

SEC. 295. There shall be provided for the inspectors weights and measures and all instruments and chemical tests necessary for the discharge of their respective duties under this chapter, which shall be paid for on the certificate

of the chief inspector, from his contingent fund, and shall belong to the state.

Sec. 295a. It shall be unlawful for any mine owner, lessee or operator of coal mines in this state, employing miners at bushel or ton rates, or other quantity, to pass the output of coal mined by said miners over any screen or other device which shall take any part from the value thereof, before the same shall have been weighed and duly credited to the employe sending the same to the surface, and accounted for at the legal rate of weights as fixed by laws of Ohio.

Unlawful to screen coal before weighing.

Sec. 295b. The provisions of this act shall also apply to the class of workers, engaged in mines wherein the mining is done by machinery, known as loaders; whenever the workmen are under contract to load by the bushel, ton or any quantity, the settlement of which is had by weight, the output shall be weighed in accordance with the provisions of this act.

Provisions apply to "loaders."

Sec. 295c. Any mine owner, lessee or operator of coal mines in this state, neglecting or refusing to comply with the conditions required to be performed by sections 295a and 295b, shall be deemed guilty of a misdemeanor, and upon conviction, be fined in any sum not exceeding six hundred (\$600) dollars, nor less than three hundred (300) dollars, at the discretion of the court.

Penalty.

Owner of a mine shall furnish a map of his mine, etc.

Inspector of cause maps to be made.

Additions made semi-annually.

Cause maps to be made in duplicate.

Maps of abandoned mines to be made.

Shall have attached sworn certificates.

Outlets required.

SEC. 296. The owner or agent of any mine having an excavation of not less than fifteen thousand cubic yards, shall make, or cause to be made, an accurate map or plan of the working of such mine on a scale of not less than two hundred feet to the inch, showing the area mined or excavated, and the location and connection with such excavation of the mine of the lines of all adjoining lands, and the name or names of each owner or owners, so far as known, marked on each tract, and the owner or agent shall annually thereafter make, or cause to be made, an addition to said map, showing the progress and plan of the working of such mine during the previous year up to the date of survey; provided, that said additions shall be made semi-annually whenever the mine inspector deems it necessary and so directs. The map shall be kept at the office of such mine, and open to the inspection of the mine inspector, or his assistants, at all reasonable times, and at the request of the inspector the owner or agent shall file a correct copy of such map with said mine inspector at Columbus, and in case of refusal on the part of the owner or agent to make and file such map, the inspector is authorized and required hereby to cause such map or maps to be made in duplicate, at the expense of said owner or agent, the cost of which shall be recoverable against the owner or agent in the name of the state mine inspector; and in case of refusal by said owner or agent to make, or cause such map and the additions thereto to be made, for sixty days after notice by the mine inspector, said agent or owner shall be liable to a fine of five dollars for each and every day until said map is made, which shall be collected in the name of the state of Ohio, at the suit of the state mine inspector, and the amount so recovered shall be paid into the township school fund of the township when collected. And when any mine is exhausted or abandoned, and before the pillars are drawn in any portion of the mine, the owner or agent thereof shall cause to be made a correct map of such mine, showing the area and working of the same to the day of abandoning, or of drawing pillars for the purpose of abandoning, and file such map within ninety days thereafter at the office of the county recorder in the county where such mine is located; said map shall have attached thereto the sworn certificate of the mining engineer making the map, and of the mine boss in charge of the underground workings of said mine; such map shall be properly labeled and filed by the recorder, and be preserved as a part of the records of the land on which such mines are located, and the recorder shall receive for said filing from said owner or agent a fee of fifty cents.

SEC. 297. It is unlawful for the owner or agent of any coal mine, worked by shaft, to employ or permit any person to work therein, unless there are, to every seam of coal worked in each mine, at least two separate outlets, separated by natural strata of not less than one hundred feet in breadth, by which shafts or outlets distinct means of ingress and

egress are always available to the persons employed in the mine; but it is not necessary for the two outlets to belong to the same mine if the persons employed therein have safe, ready and available means of ingress and egress by not less than two openings. This section shall not apply to opening a new mine while being worked for the purpose of making communication between said two outlets so long as not more than twenty persons are employed at any one time in such mine, neither shall it apply to any mine or part of a mine in which the second outlet has been rendered unavailable by reason of the final robbing of pillars previous to abandonment, so long as not more than twenty persons are employed therein at any one time. The cage or cages, and other means of egress shall at all times be available for the persons employed, where there is no second outlet. The escapement shafts shall be fitted with safe and available appliances, by which the persons employed in the mine may readily escape in case an accident occurs deranging the hoisting machinery at the main outlets, and such means or appliances for escape shall always be kept in a safe condition; and in no case shall an air shaft, with a ventilating-furnace at the bottom, be construed to be an escapement shaft, within the meaning of this section. To all other coal mines, whether slopes or drifts, two such openings or outlets must be provided within twelve months after shipments of coal have commenced from such mine; and in case such outlets are not provided as herein stipulated, it shall not be lawful for the agent or owner of such slope or drift to permit more than ten persons to work therein at any one time. In case a coal mine has but one shaft, slope or drift, for the ingress or egress of the men working therein, and the owner thereof does not own suitable surface ground for another opening, he may select and appropriate any adjoining land for that purpose, and may make an additional shaft or outlet under, through or upon any intervening land, or landing adjoining, and shall be governed in his proceeding in appropriating such land by the provisions of law in force, providing for the appropriation of private property by corporations, and such appropriation may be made, whether he is a corporator or not; but no land shall be appropriated under the provisions of this chapter until the court is satisfied that suitable premises can not be obtained upon reasonable terms.

Sec. 298. The owner or agent of every coal mine, whether shaft, slope or drift, shall provide and maintain for every such mine an amount of ventilation of not less than 100 cubic feet, per minute, per person employed in such mine, which shall be circulated and distributed throughout the mine in such a manner as to dilute, render harmless and expel the poisonous and noxious gases from each and every working place in the mine, and no working place shall be driven more than sixty feet in advance of a breakthrough, or air-way; and all breakthroughs, or air-ways, except those last made near the working faces of the mine, shall be closed up and made air-tight, by brattice, trap doors, or otherwise, so that the currents of air in circulation in the mine may

Not apply to new openings.

Does not apply unless more than 20 men are employed.

Cages fitted with safe appliances.

Slopes and drifts must be provided within twelve months

When owner does not own suitable ground.

Ventilation.

Shall not drive working place more than 60 feet in advance of breakthrough.

Working
places exam-
ined every
morning.

sweep to the interior of the mine, where the persons employed in such mine are at work, and all mines governed by the statute shall be provided with artificial means of producing ventilation, such as forcing, or suction fans, exhaust steam, furnaces or other contrivances, of such capacity and power as to produce and maintain an abundant supply of air, and all mines generating fire-damp shall be kept free from standing gas, and every working place shall be carefully examined every morning with a safety lamp, by a competent person or persons, before any of the workmen are allowed to enter the mine. All underground entrances to any places not in actual course of working or extension shall be properly fenced across the whole width of such entrances so as to prevent persons from inadvertently entering the same.

Safety appa-
ratus and pre-
cautions.

Cover over-
head of cages.

Boilers not
nearer than 60
feet to any
shaft or slope.

Competent
engineers
must be em-
ployed, etc.

Lighting and
ventilation.

SEC. 299. The owner or agent of every coal mine operated by shaft, in all cases where the human voice can not be distinctly heard, shall forthwith provide and maintain a metal tube from the top to the bottom of such shaft, suitably calculated for the free passage of sound therein, so that conversation may be held between persons at the bottom and top of the shaft; there shall also be provided an approved safety-catch, and a sufficient cover overhead, on all carriages used for lowering and hoisting persons, and in the top of every shaft an approved safety-gate, and an adequate brake shall be attached to every drum or machine used for lowering or raising persons in all shafts or slopes; and there shall also be provided in every shaft a traveling or passage way from one side of a shaft bottom to the other, so that persons working therein may not have to pass under descending cages; and all slopes or engine planes, used as traveling ways by persons in any mine, shall be made of sufficient width to permit persons to pass moving cars with safety; but if found impracticable to make any slope or engine plane of sufficient width, then safety holes of ample dimensions, and not more than sixty feet apart, shall be made on one side of said slope or engine plane. Such safety holes shall always be kept free from obstructions, and the roof and sides shall be made secure. The boilers used for generating steam, and the buildings containing the boilers shall not be nearer than sixty feet to any shaft or slope, or to any building or inflammable structure connecting with or surrounding said shaft or slope; but this section shall not apply to any shaft or slope until the work of development and shipment of coal has commenced.

SEC. 300. No owner or agent of any coal mine operated by a shaft or slope shall place in charge of any engine used for lowering into or hoisting out of such mine persons employed therein, any but experienced, competent and sober engineers; and no engineer in charge of such engine shall allow any person, except such as may be deputed for that purpose, by the owner or agent, to interfere with it or any part of the machinery, and no person shall interfere or in any way intimidate the engineer in the discharge of his duties; and in no case shall more than ten men ride on any

ge or car at one time, and no person shall ride upon a loaded cage or car in any shaft or slope.

SEC. 301. All safety lamps used for examining coal mines, or which are used in any coal mine, shall be the property of the owner of the mine, and shall be under the charge of the agent thereof, and in all mines, whether they generate fire-damp or not, the doors used in assisting or directing ventilation of the mine, shall be so hung or adjusted that they will shut of their own accord and can not stand open; and all main doors shall have an attendant, whose constant duty shall be to open them for transportation and travel, and prevent them from standing open longer than is necessary for persons or cars to pass through; and the mining boss shall keep a careful watch over the ventilating apparatus and air-way, and he shall measure the ventilation at least once a week, at the inlet and outlet, and also at or near the face of all the entries, and the measurements of air so made shall be noted on blanks, furnished by the chief inspector; and on the first day of each month the mining boss of each mine shall sign one of such blanks, properly filled with the said actual measurements, and forward the same to the chief inspector, and any mining boss making false returns of such measurements shall be deemed guilty of an offense against this section. Every person having charge of any mine, whenever loss of life occurs by accident, connected with the working of such mine, or by explosion, shall give notice thereof forthwith, by mail or otherwise, to the inspector of mines, and to the coroner of the county in which such mine is situated, and the coroner shall hold an inquest upon the body of the person or persons whose death has been caused, and inquire carefully into the cause thereof, and shall return a copy of the findings and all the testimony to the chief inspector. The owner, agent, or manager of every mine shall, within twenty-four hours next after any accident or explosion, whereby loss of life or personal injury may have been occasioned, send notice in writing to the chief inspector, and shall specify in such notice the character and cause of the accident, and the name or names of the persons killed and injured, with the extent and nature of the injuries sustained. Whenever any personal injury, of which notice is required to be sent under this section, results in the death of the person injured, notice in writing shall be sent to the chief inspector within twenty-four hours after such death comes to the knowledge of the owner, agent or manager; and when loss of life occurs in any mine by explosion, or accident, the owner, agent, or manager of such mine, shall notify the chief inspector, or the district inspector forthwith, of the fact and shall be the duty of the chief inspector to go himself, or require one of the district inspectors to go, at once to the mine in which said death occurred, and inquire into the cause of the same, and to make a written report, fully setting forth the condition of the part of the mine where such death occurred, and the cause which led to the same; which report shall be filed by the chief inspector in his office as a matter of record, and for future reference.

For any injury to persons or property, occasioned by violation of this act, or any willful failure to comply

Safety lamps
the property of
mine owner.

Main doors
shall have an
attendant.

Mine boss shall
measure the
air once a
week.

Notice of ac-
cidents.

Shall give no-
tice to the
chief inspector
and the
coroner.

Coroner shall
hold inquest.

Duty of in-
spectors.

Notice when
loss of life
occurs.

Penalty

Right of action
to party in-
jured.

with its provisions by any owner, agent or manager of any mine, a right of action shall accrue to the party injured for any direct damage he may have sustained thereby; and, in any case of loss of life, by reason of such willful neglect or failure, aforesaid, a right of action shall accrue to the widow and lineal heirs of the person whose life shall be lost, for like recovery of damages for the injury they have sustained.

Other notices
to be given
chief inspec-
tor of mines.

The owner, agent or manager of any mine shall also give notice to the chief inspector of mines in any or all of the following cases:

1. Where any change occurs in the name of any mine or in the name of any owner, agent, or manager of any mine or in the officers of any incorporated company which owns or operates a mine.

2. Where any working is commenced for the purpose of opening a new shaft, slope or mine, to which this act applies.

3. Where any mine is abandoned or the working thereof discontinued.

4. Where the working of any mine is recommenced after any abandonment or discontinuance for a period exceeding three months.

5. Where the pillars of a mine are about to be removed or robbed.

6. Where a squeeze or crush, or any other cause of change may seem to affect the safety of persons employed in any mine, or where fire occurs, or a dangerous body of gas is found in any mine.

SEC. 302. No child under fifteen years of age shall be allowed to work in any mine, and in all cases of minors applying for work the agent of such mine shall see that the provisions of this section are not violated; he shall also keep a record of all minors employed by him, or by any person employed in said mine, giving the name, age, place of birth, parents' name and residence, with character of employment, and he shall demand from such minor proof that he has complied with the requirements of the school laws; and it shall be the duty of the mine inspector to inspect such record and to report to the chief inspector of mines the number of minors employed in or about such mines and to enforce the provisions of this section.

Action for
non-compli-
ance with
statutes.

SEC. 303. In case any coal mine does not, in appliances for the safety of the persons working therein, conform to the provisions of this chapter, or the owner or agent disregards the requirements of this chapter, any court of competent jurisdiction may, on application of the inspector, by civil action in the name of the state, enjoin or restrain the owner or agent from working or operating such mine until it is made to conform to the provisions of this chapter; and such remedy shall be cumulative, and shall not take the place of or affect any other proceedings against such owner or agent authorized by law for the matter complained of in such action.

When gov-
ernor shall
convene a
board of exam-

SEC. 304. When written charges of gross neglect of duty or malfeasance in office against any inspector is made and filed with the governor, signed by not less than fifteen

coal miners or one or more operator, of mines, together with bond in the sum of five hundred dollars, payable to the state, and signed by two or more responsible freeholders, and conditioned for the payment of all costs and expenses arising from the investigation of such charges, the governor shall convene a board of examiners, to consist of two practical coal miners, one chemist, one mining engineer and one operator, at such time and place as he deems best, giving ten days' notice to the inspector against whom the charges are made, and also the person whose name appears first in the charges; and the board when so convened, and having been first duly sworn, truly to try and decide the charges made, shall summon any witnesses so desired by either party, and examine them on oath, which may be administered by any member of the board, and depositions may be read on such examination, as in other cases; and the board shall examine fully into the truth of such charges, and report the result of their investigation to the governor; and the board shall award the costs and expenses of such investigation against the inspectors or the persons signing the bond according to their finding, against said inspector or in his favor, which costs and expenses shall include the compensation of such board, of five dollars per day for each member, for the time occupied in the trial and in traveling from and to their homes; and the attorney general shall forthwith proceed to collect such costs and expenses, and pay the same into the state treasury, being in the first instance paid out of the state treasury on the certificate of the president of such board.

Duties of the board.

Sec. 305 In all coal mines in the state the miners employed and working therein, the owners of the land or other persons interested in the rental or royalty of any such mine, shall at all proper times have full right of access and examination of all scales, machinery or apparatus used in or about such mine to determine the quantity of coal mined, for the purpose of testing the accuracy and correctness of all such scales, machinery or apparatus; and such miners, landowners or other persons may designate or appoint a competent person to act for them, who shall at all proper times have full right of access and examination of such scales, machinery or apparatus, and seeing all weights and measures of coal mined, and the accounts kept of the same; but not more than one person on behalf of the miners collectively, nor one person on behalf of the landowners or other persons interested in the rental or royalty jointly, shall have such right of access, examination and inspection of scales, weights, measures and accounts at the same time, and that such person shall make no unnecessary interference with the use of such scales, machinery or apparatus; and the miners employed in any mine may, from time to time, appoint two of their number to act as a committee to inspect, not oftener than once in every month, the mine and the machinery connected therewith, and to measure the ventilating current, and if the owner, agent or manager so desires, he may accompany said committee by himself or two or more persons which he may appoint for that purpose; the owner, agent

Right of access to mines, etc.

Right to test the accuracy of the scales.

Miners to appoint a committee to inspect mine and machinery, etc.

Committee to
report to the
inspector.

or manager shall afford every necessary facility for making such inspection and measurement, but the committee shall not in any way interrupt or impede the work going on in the mine at the time of such inspection and measurement and said committee shall, within ten days after such inspection and measurement, make a correct report thereof to the inspector of mines, on blanks to be furnished by said inspector for that purpose; and if such committee make to the inspector a false or untrue report of the mines, such act shall constitute a violation of this section.

SEC. 303. Only a pure animal or vegetable oil, or other oil as free from smoke as a pure animal or vegetable oil, and not the product or by-product of resin, and which shall, on inspection, comply with the following test, shall be used for illuminating purposes in the mines of this state: All such oil must be tested at sixty degrees Fahrenheit. The specific gravity of the oil must not exceed twenty-four degrees Tagliabue. The test of oil must be made in a glass jar one and five-tenths inches in diameter by seven inches in depth. If the oil to be tested is below forty five degrees Fahrenheit in temperature, it must be heated until it reaches about eighty degrees Fahrenheit; and should the oil be above forty five degrees and below sixty degrees Fahrenheit it must be raised to a temperature of about seventy degrees Fahrenheit when, after being well shaken, it should be allowed to cool gradually to a temperature of sixty degrees Fahrenheit before finally being tested. In testing the gravity of the oil the Tagliabue hydrometer must be, when possible, read from below, and the last line which appears under the surface of the oil shall be regarded as the true reading. In case the oil under test should be opaque or turbid, one-half of the capillary attraction shall be deemed and taken to be the true reading. Where the oil is tested under difficult circumstances, an allowance of one-half degree may be made for possible error in parallax before condemning the oil for use in the mine. All oil sold to be used for illuminating purposes in the mines of this state, shall be contained in barrel packages branded conspicuously with the name of the dealer, the specific gravity of the oil, and the date of shipment.

SECTION 2. That section 303 be supplemented by the enactment of the following section, numbered as indicated.

SEC. 303. Any person or persons, firm or corporation which ships any oil contained in any barrel or barrels, package or packages, which are not branded as prescribed in section 303, said oil to be used for illuminating purposes in coal or any other mines, and any person or persons, firm or corporation which sells any oil other than that prescribed in section 303, to be used for illuminating purposes in coal or other mines, and any person or persons, firm or corporation, having in charge the operation or running of a mine, which, in a mine under his or its charge uses or permits the use of any oil other than that prescribed in section 303, and any miner or mine employe who uses, with-

knowledge of its character, in any mine in this state, any oil other than that prescribed in section 305, shall be fined not less than five nor more than fifty dollars; and any individual, firm, company or corporation which sells any oil other than that prescribed in section 306, in a quantity exceeding five barrels at one sale, to be used for illuminating purposes in coal or other mines, shall be fined not less than twenty-five nor more than one hundred dollars. Mayors and justices of the peace shall have jurisdiction to try any violations of this section, and their judgment shall be final. Every person who, after being once convicted of violating this section, shall be convicted of again violating any of the provisions of this section, may, in addition to the fine before provided, be imprisoned not less than ten days nor more than thirty days. On complaint, before a mayor or justice of the peace, of a second violation of this act involving the punishment of imprisonment, if a trial by jury be not waived, a jury shall be chosen and the case tried, after the manner provided in section 3718 of the Revised Statutes. All fines assessed and collected under prosecutions begun, or caused to be begun by the chief inspector of mines, or any district inspector of mines, shall be paid by the court to the chief inspector of mines, and by him paid into the state treasury to the credit of a fund which is hereby appropriated for the use of the chief inspector of mines in prosecuting violations of this section. Any excess of fines collected over the expenses incurred in prosecutions under this section remaining at the close of the fiscal year, shall be credited to the general revenue fund of the state.

SECTION 3. Section 306, as amended March 29, 1892 (89 O. L., 164), is hereby repealed, and this act shall take effect and be in force from and after its passage.

SEC. 6871. Whoever knowingly violates any of the provisions of sections two hundred and ninety-seven, two hundred and ninety-eight, two hundred and ninety-nine, three hundred, three hundred and one, three hundred and two, and three hundred and five, or does any act whereby the life or health of the persons, or the security of any mine and machinery are endangered; or any miner or other person employed in any mine governed by the statute, who intentionally and willfully neglects or refuses to securely prop the roof of any working place under his control; or neglects or refuses to obey any order given by the superintendent of a mine in relation to the security of the mine in the part thereof where he is at work, or for fifteen feet back from the face of his working place; or any miner, workman, or other person who shall knowingly injure any water-gauge, barometer, air-course or brattice, or shall obstruct or throw open any air-ways, or shall handle or disturb any part of the machinery of the hoisting engine, or open a door of the mine and not have the same closed again, whereby danger is produced either to the mine or those that work therein; or who shall enter any part of the mine against caution; or who shall disobey any order given in pursuance of this act;

Mines; penalty for injuring.

Penalty for neglecting to securely prop the roof.

Penalty for disturbing machinery.

Penalty for neglecting to notify coroner or chief inspector.

To supply timber.

or who shall do any willful act, whereby the lives and health of persons working in the mine, or the security of the mine or the machinery thereof, is endangered; or any person having charge of a mine, whenever loss of life occurs by accident connected with the working of such mine, or by explosion, who neglects or refuses to give notice thereof forthwith, by mail or otherwise, to the chief inspector of mines and to the coroner of the county in which such mine is situate; or any such coroner who neglects or refuses to hold an inquest upon the body of the person whose death has been thus caused, and return a copy of his findings and all the testimony to the inspector, shall be fined not less than fifty dollars, or imprisoned in the county jail not more than thirty days, or both. The owner, agent, or operator of every coal mine shall keep a supply of timber constantly on hand and shall deliver the same to the working place of the miner, and no miner shall be held responsible for accidents which may occur in mines where the provisions of this section have not been complied with by the owner, agent or operator thereof.

AN ACT

For regulating the weighing of coal at the mine where mined.

Weighing of coal; oath of weighmaster.

Bond of landowner.

SECTION 1. *Be it enacted by the General Assembly of the State of Ohio*, That whoever shall be employed to weigh coal as it comes from the mine where mined, where such weight shall be the weight upon which the amount of mining for the person mining such coal shall be estimated and the weight upon which the royalty due the owner of the lands from which such coal shall be mined, shall be estimated at any mine where ten or more miners shall be employed, shall take and subscribe an oath before some competent officer to administer such oath, that he will correctly weigh all coal taken from such mine under existing contracts between operator, miner and landowners, and give due credit for the same to the miner mining such coal in said mine, and the landowner when required, own the lands from which such coal is mined, and shall enter into bond in the sum of three hundred dollars, with two sufficient sureties and payable to the state of Ohio, said bond to be approved by and filed with the township clerk of the township where such mine may be situated for the faithful discharge of such oath. Said oath to be endorsed upon said bond.

SEC. 2. It shall be the duty of the prosecuting attorney of the county in which such mine is situated, to prosecute all persons charged with violation of such oath. Duty of prosecuting attorney.

SEC. 3. Any person convicted of such violation shall be fined in the sum of not less than fifty dollars, nor more than five hundred dollars, or imprisoned in the county jail of the county where conviction is had for not less than ten days nor more than sixty days, or both, at the discretion of the court. Penalty.

SEC. 4. This act shall take effect and be in force from and after September 1, 1898. When act takes effect.

Passed April 21, 1898.

AN ACT

Supplementary to section 3184 of the Revised Statutes, as amended March 22, 1891, to be sectionally numbered 3184a.

SEC. 3184a. Any person who performs labor in mining coal, or removing the same from the mines, or other manual labor connected therewith, for any coal or mining company owning, operating or leasing coal mines within this state, by virtue of a contract with the owner, owners, or his or their authorized agent, shall have a lien to secure the payment for the same upon the mine or mines of such company and upon all the rights of the company or corporation owning or leasing such mines, and upon all the personal property of any such company or corporation used in conducting their business of mining coal, whether the same be located at or near the mines or elsewhere. Lien upon mines for labor.

Passed March 27, 1889.

AN ACT

"To permit mine and quarry operators to cross roads," passed February 17, 1893.

SECTION 1. That any individual, partnership or corporation in Ohio, who may now or hereafter own any land or any interest either in fee or otherwise, containing any coal, clay or stone, and over any portion of which shall pass any state, county or township road or public highway, with the consent of the board of county commissioners in case of state Conditions upon which mine and quarry operators permitted to undermine or cross public roads.

or county roads, or township trustees in case of township roads, shall have and are hereby authorized to excavate, mine, quarry through or under any such road; provided, however, that before said work shall be commenced, said individual, partnership or corporation shall execute and deliver to the board of county commissioners of any such county, a bond with good and sufficient surety, in such an amount as shall be by said board considered sufficient to cover all damages that may accrue by reason of excavating, mining or quarrying through or under any such road, the same to be approved by said board; conditioned that while crossing over or mining or quarrying under any such road, a safe and unobstructed passage way or road shall be kept open by such individual, partnership or corporation for public use, and as soon as practicable the said road shall be fully restored to its original safe and passable condition.

How owner of land adjoining mine may enter and examine same.

SEC. 4374. A person owning land adjoining a mine worked for the production of coal, ore, or other mineral substance, or a person having an interest in such mine, having reason to believe that the protection of his interest in the mine, or in like minerals on his adjoining land, requires it, upon making affidavit to that effect before a justice of the peace or other proper officer, may enter such mine, and have an examination or survey made thereof; but such examination or survey shall not be made until one day's notice thereof is given to the parties in interest, nor at unreasonable times, but in such time and in such manner as will least interfere with the working of the mine, if the same is being operated at the time.

Facilities for such examination.

SEC. 4375. When the affidavit has been made and notice given, the person in charge of the mine shall, on the application of the party giving the notice, transport, by the ordinary method in use at such mine for entrance and exit, a surveying party of not more than five persons furnish to such party a competent guide and supply them with approved safety lamps; and for every person so transported, he shall be entitled to receive, from the person requesting such survey, the sum of fifty cents, unless the shaft exceeds two hundred and fifty feet in depth, when he shall be entitled to the sum of one dollar for each person and five dollars per day for the guide.

Damages sustained by such examination.

SEC. 4376. If the parties working or occupying such mine sustain any damage, for which compensation should be made, by reason of such examination or survey having been made at unreasonable times, or in an improper or unwarrantable manner, the person making the same, or causing the same to be made, shall be liable therefor.

Penalty for hindering such examination.

SEC. 4377. The parties working or occupying such mine shall not hinder or obstruct the examination or survey, when made at a reasonable time and in a reasonable manner, under a penalty of not less than fifty nor more than five hundred dollars for each offense, to be recovered before a court of competent jurisdiction.

SEC. 4378. The party who makes the application for the survey may, upon the refusal of the owner or person in charge of the mine to comply with the foregoing provisions, recover judgment, as upon default, in a court of competent jurisdiction, against the owner of such mine, in such sum as such party may declare under oath he believes to be justly due him for coal or other mineral belonging to him taken by the owner of such mine without his permission; and the statute of limitations shall not be operative as against such claim; but the demand and refusal to enter such mine shall be first proven to the satisfaction of the court or jury, and the refusal of the person in charge of the mine shall be held to be the refusal of the owner.

Action for refusal to permit examination.

SEC. 4379. The provisions of this chapter shall be available to any person who, on his oath, states that he is the owner or authorized agent of any owner of land which he believes contains coal or other valuable mineral substance within one mile of such shaft, although it does not adjoin any mine of the owner of such shaft; the affidavit required shall be sufficient if it state that the lands in which the affiant is interested are in the vicinity of such shaft, and not more than one mile distant therefrom; and service upon any owner or superintendent of such shaft shall be sufficient.

To whom provisions concerning examination available.

AN ACT

To protect the mines in Ohio and the lives of the persons employed therein.

SECTION 1. *Be it enacted by the General Assembly of the State of Ohio,* It shall be the duty of every owner, agent, or lessee of any land within this state underlaid with mineral stone coal, and of every person, firm, or corporation engaged in drilling or exploring for natural gas or oil upon such land, upon notice from the chief inspector of mines, or from any district inspector of mines, or before abandoning or ceasing to operate any gas or oil wells drilled upon such lands, to make or caused to be made, a complete and accurate map thereof, which shall show the boundaries of each tract of land drilled upon, and the buildings and all monuments found upon such premises. Each well shall be plainly marked by a name, number or letter, and located whenever possible with reference to some well defined and lasting monument, so that its exact location may be easily determined. Such map shall show the depth at which each well pierced each vein of coal, giving the thickness of each strata. On each map shall be a sworn statement of the engineer or surveyor making it, together with a sworn statement of the owner, agent or lessee operating such oil or gas wells, or of the owner of such premises, that it is a true and accurate representation of the property; and a copy thereof drawn upon tracing linen, shall be filed in the office of the chief inspector of mines, and be open to inspection at all reasonable times.

SEC. 2. It shall be the duty of every person, firm or corporation owning, or leasing any land underlaid with mineral stone coal, and upon which gas or oil wells have been drilled to, or below any vein or seam of such mineral coal, before proceeding to mine such coal, to make or cause to be made or filed in the office of chief inspector of mines such a map as is described in section 1 of this act.

SEC. 3. Whenever any person, firm or corporation sinks any well for gas or oil on lands upon which coal or other mineral is being mined, and which well passes through any mine, it shall be the duty of the person owning such land, or drilling such well, to drill the hole to a depth of at least ten feet below the vein of coal or other mineral being mined, when such hole shall be cased, and sealed upon the outside of the casing with suitable material to the level of the coal floor; and each vein of mineral being mined, pierced by such well shall be sealed in the same manner.

SEC. 4. It shall be the duty of the owner of any lands, or of the owner, or operator of any well drilled for gas or oil thereon, and which in drilling shall have passed through any vein of minable coal, before abandoning, or ceasing to operate any such well, and before drawing the casing therefrom, to seal the same in the manner following: There shall be driven in such well to a depth of at least twenty-five feet below the floor of the lowest coal measure, a round, seasoned wooden plug at least two feet in length, and equal in diameter to the diameter of the well at that point. After the plug has been properly driven, there shall be filled in on top of the same to a depth of at least twenty feet hydraulic cement lime and sharp sand, well mixed one part each of the two former to two parts of the latter material. Immediately thereafter there shall be driven well down into the cement, a round, seasoned wooden plug, at least three feet in length, tapering in form and to be of the same diameter at a distance of twelve inches from the smaller end as the diameter of the well at the point to which the plug is driven.

Where any gas or oil well passes through any gas or oil bearing rock lying above the coal measures, the owner, agent or lessee thereof, shall, upon abandoning or ceasing to operate such well, drive a dry wooden plug not less than two feet in length, equal in diameter to the diameter of the hole, to a point as near as possible to the top of the coal vein, on the top of which there shall be filled at least five feet of sediment of drillings, or cement and sand, as the mine inspector shall direct.

SEC. 5. The owner, agent or lessee of any land upon which there has been drilled any oil or gas well which has penetrated any vein of coal shall, before abandoning or ceasing to operate, or removing the casing from such well give due notice in writing to the chief inspector of mines of such fact and designating therein the well to be abandoned; and it shall thereupon be the duty of such chief inspector of mines or of any district inspector, to go at once to such well and require the owner or agent of the land, or the owner

agent or lessee of such well to plug the well as provided in this act.

In case such well is not plugged in the manner required by law within ten days after the time the chief or district inspector shall have ordered the same done, the chief or district inspector may cause the well to be plugged, and the costs and expenses of such plugging may be recovered of the person, firm or corporation whose duty it is to seal the same, in the manner provided for the recovery of penalties by section six of this act.

SEC. 6. Every person, firm or corporation, failing to comply with any of the provisions of this act, shall be subject to a penalty of not less than one hundred dollars, nor more than one thousand dollars, to be recovered by action in the name of the state, and on collection, paid into the treasury of the state to the credit of a fund which is hereby appropriated for prosecuting violations of this act, to be paid out on requisitions signed by the chief inspector of mines. Such action may be instituted in the court of common pleas of the county wherein any such well is located or of Franklin county.

In addition to the penalties herein provided, every person violating any of the provisions of this act shall be deemed guilty of a misdemeanor, and on conviction, be fined in any sum not less than fifty dollars nor more than five hundred, or be imprisoned not less than ten days nor more than sixty days, or both.

SEC. 7. This act shall take effect and be in force from and after its passage.

Passed April 23, 1898.

AN ACT

To provide against the payment of wages in scrip, orders, etc., and against selling goods or supplies to employes at excessive prices.

SEC. 7015. It shall be unlawful for any person, firm, company, or corporation to sell, give, deliver, or in any manner issue, directly or indirectly, to any person employed by him or it, in payment of wages due for labor, or as advances on the wages of labor not due, any script, token, draft, check, or other evidence of indebtedness payable or redeemable otherwise than in money; any violations of the provisions of this section shall be punishable by a fine not less than twenty-five nor more than one hundred dollars, or imprisonment of not more than thirty days, or both; and the amount of any script, token, check, draft, order, or other evidence of indebtedness, sold, given, delivered, or in any manner issued, in violation of the provisions of this section, shall be recovered in money at the suit of any holder thereof, against the person, firm, company, or corporation selling, giving, delivering, or in any manner issuing the same; and any scrip,

token, check, draft, order, or any other evidence of indebtedness issued in violation of the provisions of this section, and presented by the holder thereof, shall be taken as prima facie evidence in any court of the guilt or indebtedness of any person, firm, company or corporation selling, giving, delivering, or in any manner issuing the same, and for the purpose of this act, in case of a firm or corporation, the person selling, giving, delivering, or in any manner issuing said scrip, token, check, draft, order or other evidence of indebtedness shall be the defendant to the criminal action, and the firm, company or corporation shall be held as the defendant in the civil action. Nothing in this section shall apply or affect the right of any person, firm, company or corporation from giving orders on any store or business house, or firm in the business or profits of which he has no interest, directly or indirectly.

SEC. 7016. Whoever compels, or in any manner seeks to compel, or attempts to coerce an employe of any person, firm, or corporation to purchase goods or supplies from any particular person, firm or corporation, shall be fined not more than one hundred nor less than twenty dollars, or imprisoned not more than sixty days, or both; and whoever sells goods or supplies of any kind, directly or indirectly, to his employe, or pays the wages of labor of his employes in goods or supplies of any kind, directly, or through the invention of scrip, order, or other evidence of indebtedness, at higher prices than the reasonable or current market value in cash of such goods or supplies, shall be liable to like punishment and penalties above specified, and shall in addition thereto, be liable in civil action to the party aggrieved, in double the amount of any charges made for such goods or supplies in excess of the reasonable or current market value in cash, of such goods or supplies.

SEC. 7017. The prosecuting attorney of any county, upon complaint made to him of any violation of either of the two preceding sections within his county, shall cause such complaint to be investigated before the grand jury.

AN ACT

To amend "an act to secure prompt payment of wages of certain employes twice in each month," passed March 21, 1887 (vol. 84, page 214).

SECTION 1. *Be it enacted by the General Assembly of the State of Ohio,* That the above recited act be so amended as to read as follows:

Payment of
wages of cer-
tain employes
twice a month.

SEC. 1. That every incorporated manufacturing, mining, mercantile, street-railroad, telegraph, telephone, express water company, and construction companies, or contractor building railroads, shall pay, in lawful money, or by check draft or order, payable in lawful money, at sight or on demand on a bank located at a distance not greater than eight miles

from the place where said labor was performed, twice in each month, each and every employe engaged in its business, the wages earned by such employe to within ten days of the date of said payment; provided, however, that if at any time of payment any employe shall be absent from his regular place of labor, he shall be entitled to said payment at any time thereafter, during their regular business hours, upon demand; and provided, further, that said employer may retain at each payment, any amount said employer may order withheld from his or her wages for rent, powder, tools, tool sharpening, or oil, due said employer.

Retention of
certain
amounts.

[Section 2, as amended March 27, 1889.]

SEC. 2. Any corporation mentioned in section 1 of this act, violating any provisions of this act, shall be punished by a fine not exceeding one hundred nor less than fifty dollars. Justices of the peace, mayors and police judges shall have final jurisdiction in all cases arising under the provisions of this act; and a corporation shall be notified by warrant to be served upon the president, secretary, treasurer, or managing agent thereof; provided, that the defendant shall be entitled, on demand, to a trial by jury. If such prosecution be before a justice of the peace, and a trial by jury be not waived, the said justice shall issue a venire to any constable of the county, containing the names of sixteen electors of the county, to serve as jurors to try such case, and make due return thereof. Each party shall be entitled to two peremptory challenges, and shall be subject to the same challenges as jurors are subject to in criminal cases in the court of common pleas. If the venire of sixteen names be exhausted without obtaining the required number to fill the panel, the justice may direct the constable to summon any of the bystanders to act as jurors; but costs shall not be required to be advanced or paid by a person or an officer authorized or required by statute to prosecute such cases; and if the defendant be acquitted, or if he be convicted, and committed to jail in default of payment of fine and costs, the justice, mayor, or police judge, before whom the case was brought, shall certify such costs to the county auditor, who shall examine, and, if necessary, correct the account, and issue his warrant to the county treasurer in favor of the respective officers to whom costs are due for the amount due to each; provided, complaint for such violation is made within thirty days from date thereof; providing that in pursuance of and under this act there shall not be more than one conviction of the same corporation during any two weeks. And it shall be the duty of the inspector of shops and factories, on complaint of three or more employes of such corporation to enforce the provisions of this act.

AN ACT

To authorize the creation and to provide for the operation of tribunals of voluntary arbitration to adjust industrial disputes between employers and employed.

SECTION 1. *Be it enacted by the General Assembly of the State of Ohio*, That the court of common pleas of each county, or a judge thereof in vacation, shall have the power, and upon the presentation of the petition, or of the agreement hereinafter named, it shall be the duty of said court, or a judge thereof in vacation, to issue, in the form hereinafter named, a license or authority for the establishment within and for each county of tribunals for voluntary arbitration and settlement of trade disputes between employers and employed in the manufacturing, mechanical, or mining industries.

SEC. 2. The said petition or agreement shall be substantially in the form hereinafter given, and the petitions shall be signed by at least forty persons employed as workmen and by four or more separate firms, individuals, or corporations within the county, or by at least four employers, each of whom shall employ at least ten workmen, or by the representative of a firm, corporation, or individual employing not less than forty men in their trade or industry; provided, that at the time the petition is presented, the judge before whom said petition is presented, may, upon motion, require testimony to be taken as to the representative character of said petitioners, and if it appears that the said petitioners do not represent the will of a majority, or at least one-half of each party to the dispute, the license for the establishment of the said tribunal may be denied, or may make such other order in this behalf, as to him shall seem fair to both sides.

SEC. 3. If the said petition shall be signed by the requisite number of both employers and workmen, and be in proper form and contain the names of the persons to compose the tribunal, being an equal number of employers and workmen, the judge shall forthwith cause to be issued, a license substantially in the form hereinafter given, authorizing the existence of such tribunal and fixing the time and place of the first meeting thereof, and an entry of the license so granted shall be made upon the journal of the court of common pleas of the county in which the petition originated.

SEC. 4. Said tribunal shall continue in existence for one year from the date of the license creating it, and may take jurisdiction of any dispute between employers and workmen, in any mechanical, manufacturing, or mining industry or business, who shall have petitioned for the tribunal or have been represented in the petition therefor, or who may submit their disputes in writing to such tribunal for decision. Vacancies occurring in the membership of the tribunal shall be filled by the judge or court that license said tribunal, from three names presented by the member of the tribunal remaining of that class in which the vacancie

occur. The removal of any member to an adjoining county shall not cause a vacancy in either the tribunal or the post of umpire. Disputes occurring in one county may be referred to a tribunal already existing in an adjoining county.

The place of umpire in any of said tribunals and vacancies occurring in such place, shall only be filled by the mutual choice of the whole of the representatives of both employers and workmen constituting the tribunal, immediately upon the organization of the same. The umpire shall be called upon to act after disagreement is manifested in the tribunal by failure during three meetings held and full discussion had. His award shall be final and conclusive upon such matters only as are submitted to him in writing and signed by the whole of the members of the tribunal, or by parties submitting the same.

SEC. 5. The said tribunal shall consist of not less than two employers or their representatives and two workmen. The exact number which shall in each case constitute the tribunal shall be inserted in the petition or agreement, and they shall be named in the license issued. The said tribunal, when convened, shall be organized by the selection of one of their number as chairman and one as secretary, who shall be chosen by a majority of the members, or if such majority cannot be had after two votes then by secret ballot, or by lot, as they prefer.

SEC. 6. The members of the tribunal shall receive no compensation for their services from the city or county, but the expenses of the tribunal, other than fuel, light, and the use of the room and furniture, may be paid by voluntary subscription, which the tribunal is authorized to receive and expend for such purposes. The sessions of such tribunal shall be held at the county seat of the county where the petition for the same was presented, and a room in the court house for the use of said tribunal shall be provided by the county commissioners.

SEC. 7. When no umpire is acting, the chairman of the tribunal shall have power to administer oaths to all witnesses who may be produced, and a majority of said tribunal may provide for the examination and investigation of books, documents and accounts pertaining to the matters in hearing before the tribunal, and belonging to either party to the dispute; provided, that the tribunal may unanimously direct that instead of producing books, papers and accounts before the tribunal an accountant, agreed upon by the entire tribunal, may be appointed to examine such books, papers and accounts, and such accountant shall be sworn to well and truly examine such books, documents and accounts, as may be presented to him, and to report the results of such examination in writing to said tribunal. Before such examination the information desired and required by the tribunal shall be plainly stated in writing and presented to said accountant, which statement shall be signed by the members of said tribunal, or by a majority of each class thereof. Attorneys at law or other agents of either party to the dis-

pute shall not be permitted to appear or take part in any of the proceedings of the tribunal, or before the umpire.

SEC. 8. When the umpire is acting he shall preside, and he shall have all the powers of the chairman of the tribunal; and his determination upon all questions of evidence, or other questions, in conducting the inquiries then pending shall be final. Committees of the tribunal, consisting of an equal number of each class, may be constituted to examine into any question in dispute between employers and workmen which may have been referred to said committee by the tribunal, and such committee may hear and settle the same finally, when it can be done, by a unanimous vote, otherwise the same shall be reported to the full tribunal, and be there heard, as if the question had not been referred. The said tribunal, in connection with the umpire, shall have power to make, ordain and enforce rules for the government of the body when in session, to enable the business to proceed with in order, and to fix its sessions and adjournments; but such rules shall not conflict with this statute, nor with any of the provisions of the constitution and laws of Ohio.

SEC. 9. Before the umpire shall proceed to act, the question or questions in dispute shall be plainly defined in writing, and signed by the members of the tribunal, or a majority thereof of each class, or by the parties submitting the same; and such writing shall contain the submission of the decision thereof to the umpire by name, and shall provide that his decision thereon, after hearing, shall be final. The umpire shall be sworn to impartially decide all questions that may be submitted to him during his term of office. The submission and his award may be made in the form hereinafter given, and said umpire must make his award within ten days from the time the question or questions in dispute are submitted to him. Said award shall be made to the tribunal; and if the award is for a specific sum of money, said award may be made a matter of record by filing a copy thereof in the court of common pleas of the county wherein the tribunal is in session. When so entered of record it shall be final and conclusive, and the proper court may, on motion of anyone interested, enter judgment thereon; and when the award is for a specific sum of money, may issue final and other process to enforce the same.

SEC. 10. The form of the joint petition or agreement praying for a tribunal under this act shall be as follows:

To the Court of Common Pleas of———County (or to a judge thereof, as the case may be):

The subscribers hereto, being the number and having the qualifications required in this proceeding, being desirous of establishing a tribunal of voluntary arbitration for the settlement of disputes in the———(here name the branch of industry) trade, and having agreed upon A, B, C, D and E representing the employers, and G, H, I, J and K, represent

ing the workmen, as members of said tribunal, who each are qualified to act thereon, pray that a license for a tribunal in the ——— trade may be issued to said persons named above.

Employers.	Names.	Residence.	Works.	No. of employees.

Employes.	Names.	Residence.	By whom employed.

SEC. 11. The license to be issued upon such petition may be as follows:

State of Ohio,)
 ——— County,) ss:

WHEREAS, The joint petition and agreement of four employers (or representatives of a firm, corporation or individual, employing forty men, as the case may be), and forty workmen has been presented to this court (or if to a judge in vacation so state), praying the creation of a tribunal of voluntary arbitration for the settlement of disputes in the ——— trade within this county, and naming A, B, C, D and E, representing the employers, and G, H, I, J and K, representing the workmen. Now, in pursuance of the statutes for such case made and provided, said named persons are hereby licensed and authorized to be and exist as a tribunal of voluntary arbitration for the settlement of disputes between employers and workmen for the period of one year from this date, and they shall meet and organize on the ——— day of ———, A. D. ———, at ———.

Signed this ——— day of ———, A. D. ———.
 ——— Clerk of the Court of Common Pleas ——— County.

SEC. 12. When the tribunal agrees to submit a matter in controversy to the umpire, it may be in form as follows:

We, A, B, C, D, and E, representing employers, and G, H, I, J and K, representing workmen, composing a tribunal

of voluntary arbitration, hereby submit and refer unto the umpirage of L (*the umpire of the tribunal of the——trade*), the following subject-matter, namely: [*Here state fully and clearly the matter submitted.*] And we hereby agree that his decision and determination upon the same shall be binding upon us, and final and conclusive upon the question thus submitted; and we pledge ourselves to abide by and carry out the decision of the umpire when made.

Witness our name this —— day of ——, A. D. ——,
[Signatures]

SEC 13. The umpire shall make his award in writing to the tribunal, stating distinctly his decision on the subject-matter submitted. And when the award is for a specific sum of money, the umpire shall forward a copy of the same to the clerk of the proper court.

AN ACT

To establish a school of mines and mine engineering in the Ohio agricultural and mechanical college.

Ohio State
university,
establishment
of a school of
mines.

Course of
study; school
apparatus,
etc.

Employment
and duties of
instructors.

SECTION 1. *Be it enacted by the General Assembly of the State of Ohio*, That the trustees of the Ohio state university be and they are hereby required to establish in said university, a school of mines and mine engineering, in which shall be provided the means for studying scientifically and experimentally the survey, opening, ventilation, care and working of mines; and said school shall be provided with a collection of drawings, illustrating the manner of openings, working and ventilating mines and with the necessary instruments for surveying, measuring air, examining and testing the noxious and poisonous gases of mines, and (also) with (the) models of the most improved machinery for ventilating and operating (all the various kinds of) mines with safety to the lives and health of those engaged. Said school shall also be provided with complete mining laboratories, for the analysis of coals, ores, fire-clays and other minerals, and with all the necessary apparatus for testing the various coals, ores, fire-clays, oils, gases, and other minerals.

SEC. 2. Said trustees shall employ competent persons to give instruction in the most improved (and) successful methods of opening, (and operating), surveying and inspecting mines, including the methods and machinery employed for extracting coal, ore, fire-clay, oil, gas and other minerals from the pit's mouth and for facilitating the ascent and descent of workmen, the draining and freeing of mines from water, the causes of the vitiation of air, the quantities of fresh air required under various circumstances, natural ventilation, mechanical ventilation by flues and fans, and other ventilating machinery, the use of air engines, air compressors and coal cutting machinery; also instruction in the various uses of coals, ores, fire-clays, oils, gases and other minerals, and the

methods of testing, analyzing and assaying such minerals; also the methods employed in metallurgical and other processes in the reduction of ores and in determining the qualities of metals, particularly iron and steel, as shown by practical and laboratory tests; and there shall be kept in a cabinet properly arranged for ready reference and examination suitably connected with said school of mines (samples of the) specimens from the various mines in the state, which may be sent for analysis, together with the names of the mines and their localities in the counties from which they were sent, and the analysis and a statement of their properties attached; it shall also be his duty to furnish analysis of all minerals found in the state and sent to him for that purpose by residents of this state.

Cabinet of specimens to be kept.

SEC. 3 There is hereby appropriated out of the general revenue fund the sum of three thousand, five hundred dollars (\$3,500), to be expended in the equipment, support and maintenance of said school of mines, as provided for in the first and second sections of this act.

Appropriation.

AN ACT

To amend section 1 of an act entitled "An act to compel children under fourteen years of age to attend school a certain length of time each year," of the Revised Statutes of Ohio, passed April 25, 1890.

SECTION 1. *Be it enacted by the General Assembly of the State of Ohio*, That section 1 of an act entitled "An act to compel children under fourteen years of age to attend school a certain length of time each year," of the Revised Statutes of Ohio, passed April 25, 1890, be amended so as to read as follows:

Children between eight and fourteen years compelled to attend school.

SEC. 1. That all parents, guardians and other persons who have care of children shall instruct them, or cause them to be instructed, in reading, spelling, writing, English grammar, geography and arithmetic, and every parent, guardian, or other persons having control and charge of any child between the ages of eight and fourteen years, shall be required to send any such child or children to a public or private school for a period of not less than twenty weeks in city districts, in each school year, commencing September 1, ten weeks of which, at least shall be consecutive, which shall commence within the first four weeks of the first term of the school year; and in special, village and township districts, not less than sixteen weeks in each school year, eight of which shall be consecutive, unless such child or children are excused from such attendance by the superintendent of the public, private or parochial schools in cities, or by authority of the board of education in village, special and township districts, when it shall have been shown to the satisfaction of said superintendent, or said board, that the physical or mental condition of such child or children has been such as to prevent his, her or their attendance at school, or that said child or children are taught at home by some qualified person

or persons in such branches as are usually taught in primary schools; and in case the said board or superintendent refuse to grant such excuse from attendance, the parent or guardian of such child or children shall have the right to appeal from the decision of the board to the probate court of the county, on giving a bond, within ten days after such decision, to the approval of said court, to pay all costs made therein, and the decision of said court in the matter shall be final; provided, that all youths between eight and sixteen years of age, not engaged in some regular employment, shall attend school for the full term the schools of the district in which they reside are continued in the school year, unless excused for the reasons named in this section, and if the parents or guardians having legal charge of such youth shall fail to send these youth to school regularly for said full term, or said youth shall absent themselves from school without satisfactory excuse, said parents and guardians and said youth shall be subject to the provisions and penalties of section 8 of this act.

Unlawful to employ children under fourteen years except under certain conditions.

SEC. 2. That no child under the age of fourteen years shall be employed by any person, company or corporation during the school term, and while the public schools are in session, unless the parent, guardian, or other person having care of such child, shall be able to give substantial proof that he or she has fully complied with the requirements of section 1 of this act, or that such child has completed the usual course of primary and grammar grades in some public or private school, and such person, company or corporation shall demand such proof before giving employment to any minor, and shall make a record of said proof given, and shall be required, upon the request of the officer (hereinafter provided for) to allow said officer to examine the said record, and also the record as provided for in section 6986a of the Revised Statutes, and any person, company or corporation employing any child contrary to the provisions of this act shall be liable to a penalty of fifty dollars for each offense, to be recovered in an action for debt in any court, or before any justice of the peace having jurisdiction, and such action shall be brought in the name of the clerk of the board of education.

Regarding minors over fourteen and under sixteen who cannot read and write English

SEC. 3. That all minors over the age of fourteen, and under sixteen years, who cannot read or write the English language, shall be required to attend school at least one-half of each day, or to attend some evening school organized and maintained by the board of education, or to take regular private instruction from some person qualified, in the opinion of the superintendent of schools in cities, and the clerk of the board of education in special village and township districts to teach such branches until he or she shall obtain a certificate from the superintendent of schools in cities, and the clerk of the board of education in special village and township districts, certifying that said minor can read at sight and write legibly simple sentences in the English language, and every person, company or corporation having such minor in employment shall be required to exact such school attendance from such minor, and be prepared, upon demand of the here-

inbefore mentioned officer, to furnish evidence that such minor does comply with the requirements of this act, and any person, company or corporation failing or neglecting to exact such school attendance from such minors, shall be liable as provided for in section 2 of this act; provided, such person, company or corporation shall not have made provision for the private instruction of such minors.

SEC. 4. That every parent, guardian or other person having charge or control of any child under the age of sixteen who has been discharged from any business in order to be afforded an opportunity to receive instructions or schooling shall send such child to some public or private school until such child shall have acquired such instructions as section 3 of this act requires, and in case of failure on the part of said parent, guardian or other person to comply with the provisions of this section and of section 1 of this act, unless such child shall have been excused from such attendance by the superintendent of public schools or the clerk of the board of education in special village and township districts for reasons stated in section 1 of this act, such parent, guardian or other person shall be deemed guilty of a misdemeanor, and shall, on conviction, be liable to a fine of not less than five dollars or not more than twenty dollars for the first offense, not less than twenty for each subsequent offense, or to imprisonment for not less than one month nor more than three. The said fines, when paid, to be added to the public school funds of such school district in which the offense occurs.

Where children have been discharged from employment by reason of this act.

SEC. 5. That all children between the ages of seven and fourteen years who are habitual truants from school, or while in attendance at any public or private school are incorrigible, vicious or immoral in conduct; and all children between said ages, and all minors between the ages of fourteen and sixteen who cannot read and write the English language, who absent themselves habitually from school, or who while in attendance at any public or private school are incorrigible, vicious or immoral in conduct, or habitually wander about the streets and public places during school hours, having no business or lawful occupation, shall be deemed juvenile disorderly persons and subject to the provisions of this act.

Habitual truants.

SEC. 6. That in cities of the first and second class the board of education of said cities shall be required to employ one or more truant officers to assist in the enforcement of this act, said truant officer to be vested with police powers, and shall be authorized to enter factories, workshops, stores, and all other places where children may be employed, and perform such other services as the superintendent of schools or the board of education may deem necessary to the preservation of the morals and good conduct of school children and for the enforcement of this act, and in special village and township districts the board of education shall be required to appoint some constable or other person as truant officer, with same power as said officers have in said cities,

Truant officers to be employed in certain cities.

and the compensation of such officers shall be fixed by the board of education.

Truant officers
to make daily
reports.

SEC. 7. That the truant officer shall make daily reports to the superintendent of public schools during the school term in cities, and to the clerk of the board of education as often as the clerk shall require it to be done in special village and township districts, and he shall also keep a record of his transactions, subject to the inspection of the members and officers of the board of education and it shall be the duty of the clerk of the board of education to provide suitable blanks for said truant officer.

Duties of
truant officers.

SEC. 8. That it shall be the duty of all truant officers to examine into all cases of truancy when any such come before their notice, or when requested to do so by the superintendent of public schools, or by the board of education, and to warn such truants, their parents or guardians, in writing, of the final consequences of truancy if persisted in, and also to notify the parent, guardian or other person having the charge or control of any child between the ages of eight and fourteen years, that the said child is not attending any school, and to require said parent, guardian or other person to cause the said child to attend some recognized school within five days from said notice, and it shall be the duty of said parent, guardian or other person having the legal charge and control of said child, to cause the attendance of said child at some recognized school; if said parent, guardian or other person having the legal charge and control of said child, shall willfully neglect, fail or refuse to cause said child to attend some recognized school, it shall be the duty of said officers to make, or cause to be made, a complaint against said parent, guardian or other person having the legal charge or control of such child, in any court of competent jurisdiction in the city, special, village or township district, in which the offense occurred, for such refusal, failure or neglect, and upon conviction thereof said parent, guardian or other person, as the case may be, shall be punished by a fine of not less than five dollars nor more than twenty dollars, or the court may in its discretion, require persons so convicted to give bond in the penal sum of one hundred dollars, with one or more sureties to be approved by said court, conditioned that said persons so convicted shall cause the child or children under his or her legal charge or control to attend some recognized school within five days thereafter, and to remain at said school during the term prescribed by law: provided, that if said parent, guardian or other person in charge of such child shall prove inability to cause said child to attend said recognized school, then said parent, guardian or other person shall be discharged, and said court, upon complaint of said truant officer or other person, that said child is a juvenile disorderly person, as described in section 5 of this act, proceed to hear such complaint, and if said court shall determine that said child is a juvenile disorderly person within the meaning of this act, such child shall be deemed guilty of a misdemeanor, and said court shall thereupon sentence said child to some juvenile reformatory:

provided, that no child or children over ten years old shall be sentenced by any court to a county children's home; and that, where in the judgment of the trustees of any such home, it shall be declared by resolution at a regular meeting by them held, that the character of any child thus sentenced and kept at such home is vicious, and so bad as to be detrimental and harmful to the habits and good morals of other children at such home, said trustees are hereby authorized and empowered to remove such child or children to the boys' industrial school at Lancaster, Ohio, or the girls' industrial home at Delaware, Ohio, as the case may be; nor shall such child or children be kept at any such home beyond the period prescribed in section one, or until such child shall arrive at the age of sixteen years, unless sooner discharged by the board of trustees of said reformatory or home. Provided, however, that said sentence may be suspended in the discretion of the court, for such time as the child shall regularly attend school and properly deport himself or herself. It is further provided that if for any cause the parent, guardian or other person having charge of any juvenile disorderly person, as defined in this act, shall fail to cause such juvenile disorderly person to attend said recognized school, then complaint against such juvenile disorderly persons may be made, heard and tried and determined in the same manner as provided for in case the parent pleads inability to cause said juvenile disorderly person to attend said recognized school. * *

Sec. 9. That it shall be the duty of officers empowered or appointed under this act to assist in the enforcement thereof, to institute, or cause to be instituted, proceedings against any parent, guardian or other person having legal control or charge of any child, or corporation violating any of the provisions of this act; provided, that this law shall not be operative in any school district where there are not sufficient accommodation to seat children compelled to attend school under the provisions of this act, and that no prosecution shall be instituted against any parent, guardian or other person or child in charge of such, unless they have received due notification from an officer empowered under this act that they are acting in violation of this act.

Proceedings
when this act
is violated.

Sec. 10. When any truant officer shall discover to his full satisfaction any child under the age of fourteen years wholly or partially dependent upon his or her own labor for a living, or who shall be the support of others unable to provide for their own sustenance, or when in the judgment of the superintendent of the schools, or of the board of education, it may be necessary for such child to contribute to the support of the family of which he or she is a member, it shall be the duty of said truant officer to report such case to the proper authorities, whose duty it is to look after and care for the poor, and to endeavor to obtain such relief as may release such child from labor for such length of time each year as will be required for compliance with section 1 of this act, but such child shall not be declared a pauper or removed to any infirmary, reformatory or children's home, unless he or she shall willfully neglect to take advantage of the provisions

When this act
may be sus-
pended for a
time.

made by said truant officer for his or her relief and instruction, and said truant officer failing to obtain such relief, the superintendent of schools, or the board of education, may make suitable arrangements for the private instruction of such child while so adversely conditioned.

Duty of teachers and principals under this act.

SEC. 11. That it shall be the duty of all principals and teachers of all schools, public and private, to report to the clerk of the board of education of the city, special village or township districts in which schools are situated, the names, ages, and residence of all pupils in attendance at their schools, together with such other facts as said clerk may require, in order to facilitate the carrying out of the provisions of this act and the said clerk shall furnish blanks for said purpose, and said reports shall be made in the last week of September, December, February and April in each year; and it shall be the further duty of said principals and teachers to report to the truant officers, the superintendent of schools or the clerk of the board of education, all cases of truancy or incorrigibility in their respective schools as soon after these offenses shall have been committed as practicable.

When corporations violate this act.

SEC. 12. That when any of the provisions of this act are violated by a corporation, proceedings may be had against any of its officers or agents of said corporation, who in any way participate in, or are cognizant of such violation by the corporation of which they are the officers or the agents, and said officers or the agents shall be subject to the same penalties as individuals similarly offending.

Penalty.

SEC. 13. Any person or officer mentioned in this act, and designated as having certain duties to perform in the enforcement of any of its provisions, neglecting to perform any such duties, shall be liable to a fine of not less than twenty-five dollars, nor more than fifty dollars for each and every offense; and mayors, justices of the peace and probate judges shall have jurisdiction to try the offenses described in this act, and their judgment shall be final.

Relating to other statutes.

SEC. 14. Any provision of statutes in force when this act takes effect, which conflicts with any provisions of this act, shall, the extent it is inconsistent with the latter, and not otherwise, be held to be superseded by this act. The provisions of this act shall apply to children entitled under existing statutes to attend school at the institution for the education of the blind, and the deaf and dumb. Other provisions of the statutes in force, relating to school affairs, shall not be affected by this act, sections 4023, 4024 and 4028 of the Revised Statutes are hereby repealed.

Passed April 25, 1890.

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CHIEF INSPECTOR OF MINES

Twenty-Fifth Annual
Report to the Governor
of the State of Ohio



FOR THE YEAR 1899

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Twenty-Fifth Annual Report

OF THE



**CHIEF INSPECTOR
OF MINES**

TO THE

GOVERNOR OF THE STATE OF OHIO,

For the Year 1899.

**FRED. J. HEER, STATE PRINTER
COLUMBUS, OHIO**



OFFICE OF THE CHIEF INSPECTOR OF MINES,

COLUMBUS, OHIO, August 24, 1900.

HON. GEO. K. NASH, *Governor of Ohio*:

SIR:—In accordance with the Revised Statutes of the State of Ohio relating to the Department of Mines and Mining, I have the honor of submitting to Your Excellency the Twenty-fifth Annual Report of this Department.

Respectfully submitted,

E. G. BIDDISON,
Chief Inspector of Mines.

ANNUAL REPORT.

His Excellency, GEORGE K. NASH, Governor of Ohio:

SIR: In compliance with the statutes of the State of Ohio, relating to Mines and Mining I have the honor of submitting to you the Twenty-fifth Annual Report of the Department of Mines and Mining.

The statistical portion and other facts contained in this report were collected during the term of my predecessor, R. M. Haseltine, and were found in an incomplete form when I assumed the duties of the Department on May 1, 1900. I have endeavored with what information was at hand to make this report as full and complete as possible under these circumstances. We trust, therefore, that any discrepancies that may occur will be pardonable.

The statistical portion of this report has been arranged to conform to the calendar year, while that portion which is devoted to the Inspection of Mines extends from November 15th, 1898, to November, 15th, 1899, and is considered the fiscal year.

But one change occurred in the personnel of the Department during the period embraced in this report. Mr. Lucius Hull of Glouster, Ohio, who was appointed Inspector for the Second District on July 15, 1898, tendered his resignation to take effect on July 15, 1899. Mr. David Williams of the same place was appointed as his successor.

There was no interruption in the conducting of the industry, and the price of mining remained at sixty-six cents the same as the preceding year, and it is with a feeling of gratitude that I am able to report that the industry enjoyed the utmost prosperity throughout the entire year, and which resulted in the State's production of 15,908,934 tons of coal, the largest in the history of the State. Of this amount 6,745,260 tons were produced by means of mining machines, and shows a gain of 1,488,462 tons as compared with the preceding year. Of the year's production 456,378 tons went to the Lake Ports for distribution.

There were 28,028 persons employed in the industry, a decrease of 337 as compared with the year 1898. Of this number 21,531 were engaged as miners, and 6,497 were employed as day hands; of the former 11 were engaged in operating mining machines, and 6,299 were employed in following the machines and shooting down and loading the coal after it had been undermined.

During the year 1899 there were 1,133 mines in the State; of this number 1,055 were in operation more or less of the time. Sixty-one new mines were opened, seventy-eight remained suspended and fifty-one were either worked out or abandoned.

One thousand seven hundred and ninety-eight inspections were made by the members of the department during the year. One hundred and twenty sets of scales were tested, as compared with ninety-nine during the previous year.

In permanent improvements the returns show that thirty-six furnaces were built, twenty-five fans were erected, sixty air shafts were sunk, and forty-five second openings made.

The average time worked is given as 152 1-3 days as compared with 150 1-2 days during the year of '97 and '98.

Three hundred and ninety casualties were reported as occurring in and about the mines. Of this number fifty-nine were fatal, two hundred and four were of a serious nature, and one hundred and twenty-seven consisted of minor injuries.

The returns of the fireclay industry shows the average time worked as 162 days as compared with 171 during the year preceding. There was likewise a reduction of forty-six in the number of miners employed. The production is given at 1,173,697 tons, and increase of 146,775 tons.

The iron ore production decreased from 51,659 tons during 1898 to 25,359 in 1899.

The returns from the lime stone industry indicated that it too enjoyed a fair degree of the general prosperity with which the country was blessed.

This report is sub-divided into the usual number of subjects, each of which is accompanied with one or more tables which are constructed in such a form as to make the subject under discussion as intelligible as possible.

There are eight District Inspectors' Reports which set forth the work which each did during the year. These are followed by lists of coal, fire clay and iron ore mines and lime stone quarries of the State. As an appendix there is attached a codification of the Mining Laws of the State. The index follows last.

COAL RECEIVED AT THE LAKE PORTS.

From the returns for the year it is learned that during the year of 1899 there were received and distributed at the several lake ports 9,374,44 tons, a gain as compared with the preceding year of 103,436 tons. The lake trade for the year 1899 is the largest of which the Department has a record. By a review of the returns it is learned that the lake coal has increased 4,173,555 tons during the last decade. Of the amount received 3,307,108 tons were anthracite coal, an increase of 248,580 tons as compared with the preceding year. The footings show that 6,066,901 tons were of the bituminous variety, a decrease of 145,139 tons. This originated in the States of Pennsylvania, Ohio, West Virginia and Maryland. From the former there were produced 3,902,152 tons, a decrease of 105,603 tons. Ohio furnished 1,456,378 tons, a gain of 75,632 tons over the year 1898. From the mines of West Virginia there originated 5,231 tons, a loss of 118,098 as compared with 1898. From the State of Maryland, which has appeared on the list but once previously, there came 3,140 tons.

The footings show that of the bituminous coal received at the lake ports 24 per cent. came from the mines of Ohio as compared with 22½ per cent. during the preceding year, 25 8-10 per cent. in 1897, 21 9-10 per cent. in 1896, 32 3-10 per cent. in 1895, 28 8-10 per cent. in 1894, 46 per cent. in 1893, and 45 per cent. in 1892.

The mines of West Virginia furnished 11 6-10 per cent. of the year's transactions as compared with 13½ per cent. during the preceding year; 14 per cent. in 1897; 3 6-10 per cent. in 1896; 6½ per cent. in 1895, and 3-10 per cent. during 1894. A more striking feature of the inroad that West Virginia coal is making into the lake trade from the other States will be seen when it is remembered that during 1896 of the 5,765,605 tons of bituminous coal that went to the lake docks but 159,117 tons came from the mines of this State.

TABLE SHOWING THE TONNAGE OF LAKE COAL SHIPPED FROM OHIO, WEST VIRGINIA AND PENNSYLVANIA MINES
DURING 1899, ALSO THE VARIETY AND HOW IT WAS DISTRIBUTED.

ANNUAL REPORT

Lake Ports.	Pennsylvania.		Ohio.	West Virginia.	Maryland.	To Foreign Ports.		To Domestic Ports.		Vessel Fuel.	Total.
	Anthracite.	Bituminous.				Anthracite.	Bituminous.	Anthracite.	Bituminous.		
Buffalo, N. Y.	2,648,425	162,140				54,155		2,594,270	162,140		2,810,565
Erie, Pa.	658,633	658,636				2,302	7,000	656,331	459,300	162,236	1,317,219
Conneaut		217,191					97,859		79,943	39,359	217,191
Ashtabula		957,357					13,297		926,823	117,237	957,357
Fairport		242,906							206,752	36,153	242,905
Cleveland		1,619,468	5,515	73,385	3,140		177,469		1,304,503	319,536	1,701,508
Lorain		42,686	166,223	52,250			15,560		225,068	25,891	267,109
Huron		1,670	281,310	57,098			3,886		319,431	16,706	340,073
Sandusky			261,656	391,466			16,622		606,491	30,007	633,120
Toledo		248	741,074	125,037			15,703		811,381	39,873	866,957
Total	3,307,108	3,902,152	1,456,378	705,231	3,140	56,457	347,386	3,250,651	4,962,432	817,028	9,374,004

TABLE SHOWING SHIPMENTS OF COAL FROM LAKE PORTS FROM 1890 TO 1899—INCLUSIVE.

Lake Ports.	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	Gain.	Loss.
Buffalo, N. Y.....	2,044,134	2,865,895	2,842,330	2,703,073	2,485,255	2,620,708	3,545,022	2,334,329	2,691,946	2,810,565	118,619	.....
Erie, Pa.....	129,304	586,900	567,028	625,023	711,928	727,184	677,085	786,008	920,221	1,317,219	896,998	.....
Conneaut .....	.....	.....	.....	23,181	89,023	166,073	291,178	185,048	166,131	217,191	48,060	.....
Ashtabula	452,394	386,376	726,267	787,653	668,735	998,772	1,037,242	992,670	1,091,057	967,357	.....	133,700
Fairport	63,360	66,914	114,788	234,089	300,923	325,064	410,307	213,671	306,468	242,905	.....	63,568
Cleveland	922,536	1,016,487	1,728,831	1,512,308	997,513	1,055,480	1,576,583	1,943,834	2,049,360	1,701,508	.....	347,852
Lorain	227,181	283,811	351,168	526,405	303,090	277,600	137,285	151,624	172,269	267,109	84,840	.....
Huron	150,000	200,000	240,000	227,444	213,505	208,000	257,059	170,028	263,278	340,073	76,795	.....
Sandusky	271,540	157,571	157,516	195,276	261,363	223,131	281,351	318,451	694,976	653,120	.....	41,856
Toledo	940,000	947,288	853,935	638,533	836,232	716,069	707,655	914,875	911,962	896,957	.....	44,905
Totals	5,290,449	6,016,331	7,596,812	7,773,588	6,869,257	7,318,234	8,941,327	7,997,248	9,270,568	9,374,004	735,312	631,876

COAL PRODUCTION FOR THE YEAR.

Ohio's coal production for the year 1899 exceeded that of any former year in the history of the State, the total tonnage being 15,908,934 tons as shown by the appended table. The greatest number of tons mined any former year was in 1893, when the tonnage aggregated 14,828,000. For the period covered by this report the coal trade has been active in all sections of Ohio, and it is gratifying to state that the results, both as to the operator and the miner, in general, have been satisfactory. The demand has been good and steady, and the relations between employer and employee have been of a pleasant character.

The table which follows shows the coal as having been mined and marketed in three different grades, viz.: lump, nut and pea and slack. In 1899 the lump coal mined in the State amounted to 11,723,282 tons or 1,396,711 tons more than the product of the preceding year. The coal production for 1899 aggregated 1,893,817 tons, an increase of 255,564 tons over the year 1898. In pea and slack coal the total tonnage 1899 was 2,291,835, being 195,524 tons more than the product of same grade of coal for 1898.

Jackson county, this year, as in 1897 and 1898, takes the lead, total product being 2,179,757 tons, or a quarter of a million more than the county of Hocking, which ranks second. Eight counties produced more than a million tons each, and Jackson exceeds the two million mark. These eight counties stand in the point of production as follows: Jackson, Hocking, Athens, Perry, Guernsey, Belmont, Stark and Tuscarawas. Jefferson and Columbiana follow, each of which yields more than three quarters of a million tons of coal. The ten counties above named supplied 14,055,542 tons, or 88 3-10 per cent. of the entire output of the State, being a gain of 1 1-10 per cent. over the year 1898, 2 1-10 per cent. over the year 1897 and 6 6-10 per cent. over the year 1896.

Of Ohio's eighty-eight counties thirty are coal-producing. As above stated, Jackson ranked first in 1897 and 1898, and maintained that position in the year 1899. In 1898 Perry was second, and Hocking fourth, while in 1899 they exchanged places. Athens, Guernsey and Belmont remain third, fifth and sixth respectively, their positions remaining the same as that of last year.

Tuscarawas dropped from seventh to eighth place, while Stark advanced from the ninth to the seventh position. Columbiana, which in 1898 occupied eighth place has fallen to the tenth, while Jefferson advanced from tenth to ninth.

In the year 1898 "The Hocking Valley," comprised of the counties of Athens, Hocking and Perry, furnished for the trade 4,577,818 tons of coal, while the product of the same three counties in 1899 was 5,440,404 tons, being an increase of 862,232 tons. This production in the "Hocking Valley," is 34 2-10 per cent. of the entire product of the State. In 1898 it was 32½ per cent.; in 1897, 33 2-10 per cent.; in 1896, 34 2-

per cent. ; in 1895, 34 per cent. ; in 1894, 36 7-10 per cent. ; in 1893, 38 4-10 per cent. ; and in 1892, 37 and 7-10 per cent.

The second table which follows shows the coal tonnage of the State for 1899 as compared with the amount produced in the year 1898. By observing this table it will be seen that sixteen of the thirty counties show a gain in 1899 over 1898, while in fourteen counties there were losses. Hocking county shows the greatest increase, 675,013 tons, while Jackson comes second with 374,965 tons. Athens follows with 228,587 tons, Stark with 206,653 tons, and Guernsey with 137,250 tons. Perry county in 1898 showed the greatest gain, 340,712 tons, while in 1899, there was a loss of 41,368 from this county. The greatest loss shown by any county was Columbiana, being 86,579 tons, while the smallest was in the county of Mahoning, 840 tons. The counties showing gains in both years are Athens, Belmont, Coshocton, Guernsey, Jackson, Jefferson, Stark and Tuscarawas, eight in all. Those showing a gain this year and which showed losses in 1898, are Hocking, Lawrence, Medina, Meigs, Noble, Portage, Summit and Trumbull, total eight. Those showing losses in 1899, as compared with 1898, are nine in number, being Carroll, Columbiana, Gallia, Harrison, Morgan, Monroe, Perry, Vinton and Washington. Five counties showed losses in 1898 and 1899, as follows: Holmes, Mahoning, Muskingum, Scioto and Wayne.

TABLE SHOWING THE COAL PRODUCTION OF THE STATE BY COUNTIES DURING THE YEAR 1899.

Counties.	Tonnage for 1899.			Total 1899.	Rank in production.
	Lump.	Nut.	Pea and slack.		
Athens	1,417,880	147,523	196,372	1,761,775	3
Belmont	841,026	170,459	248,035	1,259,520	6
Carroll	148,224	29,990	33,837	212,051	14
Columbiana	535,268	111,010	153,196	799,474	10
Coshocton	246,058	46,538	72,106	364,702	11
Gallia	11,260	.....	3,210	14,470	25
Guernsey	985,377	157,792	170,605	1,313,774	5
Harrison	23,617	2,882	3,353	29,852	22
Holmes	7,879	2,767	1,675	12,321	26
Hocking	1,542,903	248,499	138,351	1,929,753	2
Jackson	1,571,004	288,900	319,853	2,179,757	1
Jefferson	619,644	123,196	193,139	935,979	9
Lawrence	111,381	16,169	7,514	135,064	16
Mahoning	58,969	6,360	8,980	74,309	19
Medina	116,551	17,837	23,828	158,216	15
Meigs	187,316	11,885	25,948	225,149	12
Morgan	16,330	3,313	5,238	24,881	23
Monroe	2,320	.....	400	2,720	29
Muskingum	162,507	20,547	37,800	220,854	13
Noble	57,051	3,013	6,650	66,714	21
Perry	1,349,734	163,982	234,806	1,748,522	4
Portage	78,741	16,740	19,297	114,778	17
Scioto	7,169	203	1,052	8,424	28
Stark	803,865	93,735	176,150	1,073,750	7
Summit	64,057	8,077	13,966	86,100	18
Trumbull	8,753	1,142	1,164	11,059	27
Tuscarawas	675,142	193,441	184,655	1,053,238	8
Vinton	56,278	6,337	8,457	71,072	20
Washington	1,301	70	728	2,099	30
Wayne	15,677	1,410	1,470	18,557	24
Totals	11,723,282	1,893,817	2,291,835	15,908,934	--

**OWING THE COAL TONNAGE OF THE STATE FOR 1899 AS
COMPARED WITH 1898.**

Counties.	1898.	1899.	Gain.	Loss.
.....	1,533,188	1,761,775	228,587	.....
.....	1,168,567	1,259,520	90,953	.....
.....	261,535	212,051	.....	49,484
.....	886,053	799,474	.....	86,579
.....	342,904	364,702	21,798	.....
.....	17,391	14,470	.....	2,921
.....	1,176,524	1,313,774	137,250	.....
.....	38,144	29,852	.....	8,292
.....	15,601	12,321	.....	3,280
.....	1,254,740	1,929,753	675,013	.....
.....	1,804,792	2,179,757	374,965	.....
.....	829,526	935,979	106,453	.....
.....	68,835	135,064	66,229	.....
.....	75,149	74,309	.....	840
.....	147,714	158,216	10,502	.....
.....	193,335	225,149	31,814	.....
.....	26,940	24,881	.....	2,059
.....	4,451	2,720	.....	1,731
.....	250,718	220,854	.....	29,864
.....	62,912	66,714	3,802	.....
.....	1,789,890	1,748,522	.....	41,368
.....	75,851	114,778	38,927	.....
.....	12,140	8,424	.....	3,716
.....	867,097	1,073,750	206,653	.....
.....	65,378	86,100	20,722	.....
.....	7,471	11,059	3,588	.....
.....	950,913	1,053,238	102,325	.....
.....	85,144	71,072	.....	14,072
.....	3,634	2,099	.....	1,535
.....	41,598	18,557	.....	23,041
.....	14,058,135	15,908,934	2,119,581	268,782
.....	.....	.....	1,850,799	.....

TABLE SHOWING THE COAL OUTPUT OF THE STATE FROM 1872
TO 1899 INCLUSIVE.

Years.	Output.	Gain.	Loss.
1872	5,313,294		
1873	4,550,028		76,326
1874	3,267,585		128,224
1875	4,864,259	1,596,674	
1876	3,500,000		1,364,259
1877	5,250,000	1,750,000	
1878	5,500,000	250,000	
1879	6,000,000	500,000	
1880	7,000,000	1,000,000	
1881	8,225,000	1,225,000	
1882	9,450,000	1,225,000	
1883	8,229,429		1,220,571
1884	7,650,062		579,367
1885	7,816,179	166,117	
1886	8,435,211	619,032	
1887	10,301,708	1,866,479	
1888	10,910,946	613,338	
1889	10,907,385		3,561
1890	11,788,859	881,474	
1891	13,050,187	1,261,328	
1892	14,599,908	1,549,721	
1893	14,828,097	228,189	
1894	11,910,219		2,917,878
1895	13,683,879	1,773,660	
1896	12,912,608		771,271
1897	12,448,822		463,786
1898	14,058,155	1,609,333	
1899	15,908,934	1,850,799	

COAL MINED BY MACHINERY DURING THE YEAR.

The report of this department for the year 1898 showed that 5,252,598 tons of coal were mined by machinery. The table hereto attached gives the production of machine-mined coal in 1899 as being 6,745,260 tons, or a gain of 1,492,662 tons. This is a gain greater than that of 1898 over 1897, and is the greatest of any year in the history of the state.

Machines were operated in the mines of twelve Ohio counties, the number being the same as that for last year, with the exception that Muskingum has been added to and Stark taken from the list. More machines were in operation, and consequently more operators were employed. The report of last year showed the number of machine operators in 1898 to have been 805, while in 1899 this number was increased to 841, a gain of 36. In 1898 there were 5,887 hands following machines, and in 1899 this number was increased to 6299, being 412 more than the year before. Athens County employed the greatest number of machine operators and hands, 207 of the former, and 1778 of the latter, but the product by this process of mining was larger in Hocking than in any other county of the state, its total tonnage being 1,815,173. Athens County was second, with 1,584,502 tons; Guernsey third, with 1,221,275 tons, and Perry fourth with 1,121,117 tons. Jackson County though first in the production of coal in Ohio, is well down the list in the use of mining machines, ranking sixth, employing only fifty-two operators and 10 hundred and six hands. The cause assigned for this is that the coal of Jackson County is lacking in thickness as compared with the seams in other counties, and experience has proven that better results are attained in machine mining in the larger veins.

The product by machine mining increased in Athens, Belmont, Columbiana, Guernsey, Hocking, Jackson, Jefferson and Perry; while there was a decrease in the counties of Carroll, Meigs, and Portage as compared with the year 1898.

Of the 6,745,260 tons of coal mined by machinery, 5,292,790 tons were lump, being 78 5-10 per cent. of the total machine-mined product. The pick mined coal amounted to 9,163,674 tons, 6.430.492 tons of which were lump, being 71 2-10 per cent. of the total product coming from the machines. This shows a ratio of 7 3-10 per cent. more lump coal as having been mined by machines than by the pick process.

TABLE SHOWING THE AMOUNT OF COAL MINED BY MACHINERY
THE TIME WORKED, AND THE NUMBER OF MEN EMPLOYED
IN MACHINE MINING.

Counties.	Days Worked.	Hands Operating Machines.	Hands Following Machines.	Lump.	Nut.	Pea and Slack.	Totals.
Athens	182	207	1,778	1,295,045	120,108	169,349	1,584,502
Belmont	131	36	144	81,080	14,669	25,135	120,884
Carroll	18	20	30	2,360	.....	.....	2,360
Columbiana	253	36	230	229,804	56,881	70,104	356,789
Guernsey	258	147	1,123	914,037	148,952	158,286	1,221,275
Hocking	168	168	1,564	1,474,351	209,918	130,904	1,815,173
Jackson	184	52	206	238,173	18,714	41,976	298,863
Jefferson	218	28	63	144,759	27,470	39,147	211,376
Meigs	188	2	.....	1,951	.....	.....	1,951
Muskingum	200	4	6	3,500	.....	700	4,200
Perry	186	137	1,155	900,960	78,718	141,439	1,121,117
Portage	220	4	.....	6,770	.....	.....	6,770
Totals	2,206	841	6,299	5,292,790	675,430	777,040	6,745,260
Average	184	.....	.....	.....	.....	.....	.....

TABLE SHOWING THE ANNUAL PRODUCTION OF MACHINE MINED
COAL SINCE THE INTRODUCTION OF ELECTRICITY INTO THE
MINES OF THE STATE.

Years.	Output.	Gain.	Loss.
1889	900,000	.....	.....
1890	1,148,499	248,499	.....
1891	1,654,081	505,632	.....
1892	2,239,080	584,999	.....
1893	2,553,074	313,994	.....
1894	2,555,466	2,392	.....
1895	3,120,456	564,990	.....
1896	3,368,349	247,893	.....
1897	4,106,124	737,775	.....
1898	5,252,598	1,146,474	.....
1899	6,741,060	1,488,462	.....

MINES IN WHICH MINING MACHINES HAVE BEEN INSTALLED, AND THE NUMBER AND KIND OF EACH.

During the year 1899 machines were used in seventy-four of the mines of the State of Ohio, as compared with sixty-four in 1898; fifty-three in 1897, and forty-four in 1896. These mines are located in the counties of Athens, Belmont, Carroll, Columbiana, Guernsey, Hocking, Jackson, Jefferson, Meigs, Muskingum, Perry and Portage.

During the year machines were placed in the following mines, where they had not previously been in use: At the Elm Rock, Greendale No. 29, new, and Buchtel No. 5, located in Athens county; Glen and Pittsburg in Belmont; Nicholson in Guernsey; Consol in Hocking; Milton No. 3 and Enterprise in Jackson; High Shaft in Jefferson; Werner No. 3 in Muskingum; Sunday Creek No. 8, Rend's No. 3 and No. 18 in Perry. The use of machines was discontinued at Bessie and also at Half Moon or No. 3 mines in Athens county, and at Woodland Mine in Stark county. Aside from this, motors were in operation in three mines as follows: Morgan Run mine, located in Coshocton county; Tom Corwin No. 2, located in Jackson county, and Keystone mine located in Perry.

By referring to the following table it will be seen that during the year 1899 machines of the electric type were used to the number of 236, an increase of 42 over 1898. In 1897 the number was 166; in 1896, 130; in 1895, 82; in 1894, 59; in 1893, 42; and in 1892, 27. Hence the application of electrical machinery toward the production of coal is comparatively a new departure, but one that is growing in favor each succeeding year.

But while the machines depending upon electricity for power are becoming more popular and are more generally used, those operated by compressed air are becoming fewer. In 1899 the compressed air machines numbered forty-four; in 1898, fifty-eight; in 1897, sixty-seven; in 1896, seventy-nine; in 1895, eighty-six; and in 1894, one hundred and twelve.

The use made of electric motors is to haul coal from the gathering points. In 1898 motors were employed in twenty mines, and this number was increased to twenty-five during 1899, an evidence that the motor as well as the mule is very useful.

SHOWING THE NUMBER, MANUFACTURE, MOTIVE POWER AND LOCATION OF MINING MACHINES, ETC.—Concluded.

Names of Mines.	Counties.	Electricity.				Compressed Air.				Motor.
		Jeffrey.	Morgan-Gardner.	Independent or Link Belt Co.	General Electric Co.	Jeffrey.	Harrison.	Ingersoll-Sergeant.	Sullivant.	
Run	Meigs.....					2				
er No. 3.....	Muskingum..		1							
H. C. & I. No. 3.....	Perry.....	2	4							
y Creek No. 21.....	".....		8							2 Morgan-Gardner.
y Creek No. 8.....	".....		4							Jeffrey.
No. 1.....	".....	12								Jeffrey.
No. 2.....	".....		3							
No. 3.....	".....		3							
No. 1.....	".....	3								Jeffrey.
or	".....		1							
one	".....									Morgan-Gardner.
er 12	".....	2								
er 18	".....	3								
n No. 4.....	Portage.....		2		2					
Totals		107	116	3	10	21	17	6		

NUMBER OF MINES IN OPERATION AND TIME WORKED AS COMPARED WITH 1898.

During the year 1899 there was a decrease in the number of mines in operation of one hundred and eight as compared with the year 1898, the number in 1898 being one thousand one hundred and fifty-five, while in the year 1899 the number is given as one thousand and forty-seven. Gains were made as follows: In Coshocton county, one; in Jefferson, four; in Belmont, nine; Perry, four; the total amounting to eighteen in all. The losses aggregate one hundred and twenty-six, as follows: In Athens county, five; Belmont, three; Carroll, 4; Columbiana, eight; Guernsey, three; Harrison, twelve; Holmes, four; Hocking, six; Jackson, two; Lawrence, eighteen; Mahoning, four; Medina, one; Meigs, six; Monroe, three; Muskingum, eighteen; Stark, ten; Summit, three; Trumbull, five; Tuscarawas, nine; and Vinton, three. These losses were occasioned by suspended (idle), worked-out and abandoned mines, and while the number of mines in operation was fewer last year than for the year before, the fact shows the coal trade to have been in a much healthier condition.

The number of mines returned for the year 1898 was the greatest on record, being an increase of twenty-nine over the year 1897, and forty-one over the year 1896. However, the number of mines in operation does not always give a correct idea of the activity of the trade. Many are comparatively small, and their product is limited.

In each of the years 1896, 1897 and 1898, the average time the several mines of the State were in operation was one hundred and fifty and one-half days, and last year it reached one hundred and fifty-two and one-third days, a gain of one and five-sixths days. Gains aggregating three hundred and twelve days were reported from fifteen counties, while the total losses amounting to two hundred and forty-seven days came from fourteen counties. It is interesting to note that the best gains were made in the larger coal-producing counties and that the losses occurred in localities where the least amount of coal was mined.

TABLE SHOWING COMPARATIVELY THE NUMBER OF MINES OPERATED AND DAYS WORKED IN 1898 AND 1899.

Counties.	Number of Mines Worked in 1898.	Number of Mines Worked in 1899.	Gain.	Loss.	Average Number of Days Worked in 1898.	Average Number of Days Worked in 1899.	Gain.	Loss.
Athens	45	40	.....	5	124	153	29	.....
Belmont	71	68	.....	3	166	176	10	.....
Carroll	31	27	.....	4	114	175	61	.....
Columbiana	61	53	.....	8	176	189	13	.....
Coshocton	25	26	1	.....	202	205	3	.....
Gallia	5	5	.....	.....	121	116	.....	5
Guernsey	30	28	.....	2	165	186	21	.....
Harrison	65	53	.....	12	136	127	.....	9
Holmes	15	11	.....	4	208	171	.....	37
Hocking	24	18	.....	6	142	142	.....	.....
Jackson	83	79	.....	4	127	151	24	.....
Jefferson	46	50	4	.....	173	168	.....	5
Lawrence	44	26	.....	18	174	201	27	.....
Mahoning	40	36	.....	4	166	163	.....	3
Medina	13	12	.....	1	171	201	30	.....
Meigs	41	45	4	.....	149	141	.....	8
Morgan	2	2	.....	.....	162	107	.....	55
Monroe	7	4	.....	3	131	99	.....	32
Muskingum	142	124	.....	18	160	151	.....	9
Noble	40	49	9	.....	100	118	18	.....
Perry	81	85	4	.....	129	149	20	.....
Portage	4	4	.....	.....	169	174	5	.....
Scioto	7	7	.....	.....	103	95	.....	8
Stark	91	81	.....	10	163	168	5	.....
Summit	17	14	.....	3	186	178	.....	8
Trumbull	12	7	.....	5	99	119	20	.....
Tuscarawas	86	77	.....	9	159	185	26	.....
Vinton	15	12	.....	3	140	128	.....	12
Washington	6	6	.....	.....	92	69	.....	23
Wayne	6	6	.....	.....	199	166	.....	33
Total	1,155	1,055	22	122	150½	152 1/3	312	247

LARGE AND SMALL MINES IN THE STATE AND THE NUMBER THAT WERE IN OPERATION DURING THE YEAR.

The accompanying table is designed to show the number of coal mines that were in operation during the year 1899. These mines are divided into two classes, large and small. Those mines classified as Large Mines employ more than ten men, and those classified as Small Mines employ less than ten men. In the list of large mines Jackson county leads with fifty-four. Perry follows with forty-seven, Stark with forty-one, Tuscarawas with thirty-five, Athens with thirty-four, Belmont with thirty and Columbiana with twenty-five. Neither Holmes or Monroe county have any mines listed or classified as large mines. However, the former county has but eleven mines in all, and the latter but five.

Muskingum county has the largest number of small mines, one hundred and fifteen in all as well as leads in the aggregate number of mines having a total of one hundred and thirty mines. Perry county ranks second with a total of ninety, followed by Stark with eighty-seven, Jackson eighty-five, Tuscarawas eighty-three, Belmont seventy-one, Columbiana fifty-nine, Harrison fifty-eight, Jefferson fifty-five, and Athens forty-six.

The total number of large mines in the State in 1899 was four hundred and seventeen, of which number three hundred and eighty-eight were in active operation. The small mines aggregated seven hundred and sixteen, and of these six hundred and sixty-seven produced coal.

TABLE SHOWING THE NUMBER OF LARGE AND SMALL MINES IN THE STATE AND THE NUMBER OF EACH THAT WERE IN OPERATION DURING 1899.

Counties.	Number mines which employ more than ten men.	Number mines which employ less than ten men.	Total by counties.	Number large mines in operation during 1899.	Number small mines in operation during 1899.	Total number mines in operation during 1899.
Athens	34	11	46	31	9	40
Belmont	30	41	71	27	41	68
Carroll	12	19	31	11	16	27
Columbiana	25	34	59	21	32	53
Coshocton	16	10	26	16	10	26
Gallia	2	6	8	2	3	5
Guernsey	14	16	30	14	14	28
Harrison	1	57	58	.....	53	53
Holmes .....	.....	11	11	.....	11	11
Hocking	16	4	20	16	2	18
Jackson	54	31	85	50	29	79
Jefferson	17	38	55	15	35	50
Lawrence	7	22	29	7	19	26
Mahoning	6	33	39	6	30	36
Medina	7	5	12	7	5	12
Meigs	13	32	45	13	32	45
Morgan	2	.....	2	2	.....	2
Monroe .....	.....	5	5	.....	4	4
Muskingum	15	115	130	15	109	124
Noble	1	50	51	1	48	49
Perry	47	43	90	44	41	85
Portage	4	.....	4	4	.....	4
Scioto	1	7	8	1	6	7
Stark	41	46	87	38	43	81
Summit	3	11	14	3	11	14
Trumbull	2	6	8	1	6	7
Tuscarawas	35	48	83	32	45	77
Vinton	8	7	15	7	5	12
Washington	1	5	6	1	5	6
Wayne	3	3	6	3	3	6
Totals	417	716	1,133	388	667	1,055

MINERS AND DAY HANDS.

Men who produce coal are divided into two classes — miners and day hands. The former, by means of a pick or machine, mine the coal from its natural state, while the latter, in various capacities, bring it to the surface and place it in a position to be shipped or for consumption.

Last year 21,531 miners and 6,497 day hands were employed in the mines of Ohio, as compared with 21,819 miners and 6,546 day hands during the year 1898, being a loss of 288 miners and 49 day hands. From this it will be seen that while the number of men engaged in the coal mining industry in 1899 was not quite equal to those so employed the preceding year, yet the yield in tonnage was much greater and the earnings of the employees were more.

More miners are employed in Jackson than in any other county of the State. In 1899 this county gave employment to 2,917 miners and 1,214 day hands, being 276 less miners and twenty-five less day hands than the preceding year. Perry county ranks second in the number of miners with 2,267, and third in day hands with 663. Athens takes third position in the number of miners employed, having 2,239; but in day hands the county ranks second, with 687. The three above named counties each employed more than two thousand miners. In each of the other seven counties the number passes the thousand mark as follows: Hocking, 1,867; Stark, 1,795; Guernsey, 1,716; Belmont, 1,711; Tuscarawas, 1,349; Columbiana, 1,072; and Jefferson, 1,066.

Gains were made in nine counties, while losses occur in twenty-one. Tuscarawas county made the greatest gain, 461, while Jackson showed the largest loss, 276.

Fourteen counties reported gains in the number of day hands employed, Meigs taking the lead with fifty-seven, with Athens a close second. Losses are shown in fifteen counties, the greatest number being seventy-eight in Columbiana county. No change took place in Monroe.

TABLE SHOWING THE NUMBER OF MINERS AND DAY HANDS EMPLOYED IN THE SEVERAL COUNTIES DURING 1899 AS COMPARED WITH 1898.

Counties.	No. Miners Employed During 1898.	No. Miners Employed During 1899.	Gain.	Loss.	No. Day Hands Employed During 1898.			No. Day Hands Employed During 1899.			Total Gain.	Total Loss.
					Inside.	Outside.	Total.	Inside.	Outside.	Total.		
Athens	2,444	2,239	.....	205	379	261	640	399	288	687	47	.....
Belmont	1,519	1,711	192	.....	249	154	403	245	140	385	.....	18
Carroll	371	333	.....	38	58	46	104	66	47	113	9	.....
Columbiana	1,237	1,072	.....	215	200	142	342	152	112	264	.....	78
Coshocton	487	471	.....	16	89	54	143	92	50	142	.....	1
Gallia	38	28	.....	10	6	7	13	6	5	11	.....	2
Guernsey	1,434	1,716	282	.....	344	123	467	397	96	493	16	.....
Harrison	127	94	.....	33	17	11	28	4	5	9	.....	19
Holmes	48	41	.....	7	3	7	10	3	4	7	.....	3
Hocking	1,757	1,867	110	.....	254	218	472	266	214	480	8	.....
Jackson	3,193	2,917	.....	276	903	336	1,239	898	316	1,214	.....	25
Jefferson	912	1,066	154	.....	136	117	253	136	135	271	18	.....
Lawrence	280	313	33	.....	27	29	56	37	37	74	18	.....
Mahoning	203	180	.....	23	31	38	69	29	28	57	.....	12
Medina	347	254	.....	93	44	42	86	50	33	83	.....	3
Meigs	420	375	.....	45	68	42	110	109	58	167	57	.....
Morgan	61	50	.....	11	5	6	11	4	5	9	.....	2
Monroe	18	10	.....	8	.....	2	.....	.....	2	.....	.....	.....
Muskingum	571	521	.....	50	52	46	98	44	48	92	.....	6
Noble	295	182	.....	113	14	9	23	13	13	26	3	.....
Perry	2,479	2,267	.....	212	388	297	685	377	296	673	.....	22
Portage	200	214	14	.....	37	26	63	48	30	78	15	.....
Scioto	36	15	.....	21	1	.....	1	2	2	4	3	.....
Stark	1,853	1,795	.....	58	358	262	620	321	306	627	7	.....
Summit	136	216	80	.....	37	27	64	48	35	83	22	.....
Trumbull	47	52	5	.....	4	7	11	6	6	12	1	.....
Tuscarawas	888	1,349	461	.....	253	179	432	245	154	399	.....	33
Vinton	202	134	.....	68	42	25	67	18	16	34	.....	33
Washington	21	13	.....	8	3	3	6	4	3	7	1	.....
Wayne	95	31	.....	64	14	14	28	6	5	11	.....	17
Totals	21,819	21,531	1,281	1,569	4,016	2,530	6,546	4,025	2,472	6,497	225	274

NEW MINES OPENED, SUSPENDED AND ABANDONED.

According to reports received, sixty-one new mines were opened in Ohio during the year, ending November 15th, 1899, that being the date when the inspections for the year for this Department closed. These new mines are distributed through nineteen of the thirty coal producing counties, the greatest individual number being in Muskingum and Noble counties, each of which report eight new mines opened. Jackson county ranks third with six, Stark fourth with five, while Lawrence and Tuscarawas report the same number. Athens, Carroll, Columbiana, Jefferson and Meigs each report three new mines. Eighteen more new mines were opened in the year 1898 than in 1899, but a number of them were comparatively small. In fact, there has been a falling off in the number of new mines opened for the past six years, but much more coal is now produced than formerly, the output for the year 1899 surpassing that of any other year.

During the year covered by this report seventy-eight mines were sus-

ded and fifty-one abandoned as compared with one hundred suspended seventy-three abandoned during 1898.

The suspended mines are those idle from different causes, the ones may resume operations under conditions that are favorable. The accompanying table shows six suspended mines in each of the counties of Alabama, Jackson, Muskingum, Stark and Tuscarawas, while Athens, Harrison, Jefferson and Perry each report five mines suspended.

Of the fifty-one mines reported as having been worked out or abandoned during the year, twelve were in Muskingum and ten were in Noble, the two counties showing 43 1-10 per cent. of the entire number in the State. The abandoned mines are distributed through fifteen counties as compared with twenty-one in the year 1898.

TABLE SHOWING THE NUMBER OF MINES OPENED, SUSPENDED AND ABANDONED DURING THE YEAR.

Counties.	Number new mines opened.	Number of mines suspended.	Number of mines abandoned.
Adams	3	5	1
Albany	3	3	3
Allegheny	3	4	2
Armstrong	3	6	1
Ashtabula	1		
Ashland		3	
Aurora	1	2	
Barren		5	
Bath			
Beaver	2	2	
Belt	6	6	2
Berkshire	3	5	
Berkshire	4	3	
Berkshire	1	3	
Berkshire	2		1
Berkshire	3		1
Berkshire			
Berkshire		1	
Berkshire	8	6	12
Berkshire	8	2	10
Berkshire	1	5	2
Berkshire			1
Berkshire		1	
Berkshire	5	6	9
Berkshire			
Berkshire		1	
Berkshire	4	6	3
Berkshire		3	
Berkshire			1
Berkshire	1		2
Totals	61	78	51

DETAILED LIST OF NEW MINES OPENED, SUSPENDED AND
ABANDONED DURING THE YEAR.

ATHENS COUNTY.

New Mines.	Suspended.	Abandoned Mines.
Somers	Bessie	Carbondale West.
Patch	Federal Valley No. 2....	
Love	Old Hickory	
.....	Oak Grove	
.....	Cliff	

BELMONT COUNTY.

New Mines.	Suspended.	Mines Abandoned.
Kennon No. 1.....	Franklin	Rock Hill.
Idler	Wheeling Creek No. 2...	Bernard.
.....	McConaughy	Lephart.

CARROLL COUNTY.

New Mines.	Suspended.	Abandoned Mines.
Magnolia	Sellers	Linden No. 3.
Shanty Hill	James A. Lee.....	Linden No. 5.
Starkey No. 2.....	Starkey No. 2.....	
.....	Hartford	

COLUMBIANA COUNTY.

New Mines.	Suspended.	Abandoned Mines.
Davis	Foster	Central.
Freeds	Andrew Roley	
Swearingen	Farmers	
.....	Oak Grove Drift.....	
.....	Bassett	
.....	Pleasant Valley	

DETAILED LIST OF NEW MINES OPENED, ETC.—Continued.

COSHOCTON COUNTY.

New Mines.	Suspended.	Abandoned Mines.
le No. 2.....	

GALLIA COUNTY.

New Mines.	Suspended.	Abandoned Mines.
.....	Wilkinson	
.....	Jones Slope	
.....	Thos. E. Evans.....	

GUERNSEY COUNTY.

New Mines.	Suspended.	Abandoned Mines.
Orchard	Sayers	
.....	James Likes	

HARRISON COUNTY.

New Mines.	Suspended.	Abandoned Mines.
.....	Messinger	
.....	Campbell No. 2.....	
.....	Decker	
.....	Leas	
.....	Stewart	

HOCKING COUNTY.

New Mines.	Suspended.	Abandoned Mines.
v Pittsburgh No. 5, chtel	Lama	
Run No. 2.....	Cohagen & Achauer.....	

DETAILED LIST OF NEW MINES OPENED, ETC.—Continued.

JACKSON COUNTY.

New Mines.	Suspended.	Abandoned Mines.
Enterprise	Iron Valley	Wellston No. 1. City Coal Co.
Milton No. 3.....	Aetna	
McKittricks	Ohio	
Halls	Monroe	
Star No. 4.....	John S. Evans.....	
Ohio Fire Brick Co.....	Hurd	

JEFFERSON COUNTY.

New Mines.	Suspended.	Abandoned Mines.
Hill	Bustard	
Vankirk	Brilliant	
Lacey	High Vein	
.....	Gravel Shaft	
.....	Joseph Cooper	

LAWRENCE COUNTY.

New Mines.	Suspended.	Abandoned Mines.
Kinstler (coal)	Willard Coal Co. No. 1..	
Willard No. 1 (coal).....	Haskell No. 1.....	
Arthur (coal)	Mrs. Oscar Ellison.....	
Cline .....	.....

MAHONING COUNTY.

New Mines.	Suspended.	Abandoned Mines.
Ryder	Spring Run	
.....	Ruhlman	
.....	Robert Krumm	

DETAILED LIST OF NEW MINES OPENED, ETC. — Continued.

MEDINA COUNTY.

New Mines.	Suspended.	Abandoned Mines.
ka	Akron No. 2.
ners	

MEIGS COUNTY.

New Mines.	Suspended.	Abandoned Mines.
ond No. 2.....	Excelsior.
ger (coal)	
de No. 2.....	

MONROE COUNTY.

New Mines.	Suspended.	Abandoned Mines.
.....	Steele	

MUSKINGUM COUNTY.

New Mines.	Suspended.	Abandoned Mines.
.....	Bealer	Orange Hill.
on	Orange Hill	Eagle.
lenbark.....	Norman	Fletcher.
ers	Trimbell	Moore's 3 Foot.
nan	W. S. Wilkins.....	Copeland No. 2.
ut Hill No. 2.....	Ralph Spencer	Copeland No. 1.
ann No. 2.....	Eschman.
cess No. 2.....	Blockson & Bunting.
.....	Ashcraft.
.....	Kennedy.
.....	Jamison.
.....	Miller.

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DETAILED LIST OF NEW MINES OPENED, ETC. — Continued.

NOBLE COUNTY.

New Mines.	Suspended.	Abandoned Mines.
Orr	Young	D. R. Curtis.
Mt. Ephraim No. 2.....	Curtis	Mt. Ephraim.
McClintock No. 3.....	Beymer.
Taylor No. 2.....	Pettay.
Anderson	Culland.
Pickinpaw	Warfield.
Franklin No. 4.....	Young.
Little	Smith.
.....	Franklin No. 3.
.....	Taylor.

PERRY COUNTY.

New Mines.	Suspended.	Abandoned Mines.
No. 18 or Jobs.....	Howe	Beech Grove No. 5.
.....	Hart	No. 33 A.
.....	Cooperative	
.....	Clover Hill No. 2.....	
.....	John Bell	

PORTAGE COUNTY.

New Mines.	Suspended.	Abandoned Mines.
.....	Hutson No. 1.

SCIOTO COUNTY.

New Mines.	Suspended.	Abandoned Mines.
.....	Isaac Bennington	

DETAILED LIST OF NEW MINES OPENED, ETC.—Continued

STARK COUNTY.

New Mines.	Suspended.	Abandoned Mines.
al Mine	South Massillon	Western Ohio No. 1.
hart & Vanderbush...	Fox Run	Clover Hill.
lewood No. 4.....	Barnhart & Vanderbrush.	Minglewood Slope.
Mine	Naysmith	Tressell.
wick No. 2.....	H. A. Harsh.....	Nutwood.
.....	Tressell	Upper Pigeon Run.
.....	.....	Wm. Stone.
.....	.....	Robinson.
.....	.....	Willom Spring No. 1.

TRUMBULL COUNTY.

New Mines.	Suspended.	Abandoned Mines.
.....	Applegate	

TUSCARAWAS COUNTY.

New Mines.	Suspended.	Abandoned Mines.
er	Odberts No. 1.....	Brockhill No. 3.
arawas	Odberts No. 2.....	Oak Grove.
ison Rolling Mill....	Odberts No. 3.....	T. V. No. 1.
Goshen No. 2.....	Robert Sewell	
.....	Harvey Gibbs	
.....	Penna. C. & I. Co.....	

VINTON COUNTY.

New Mines.	Suspended.	Abandoned Mines.
.....	Hanging Rock.....	
.....	Robinett	
.....	John Blore	

DETAILED LIST OF NEW MINES OPEN

NOBLE COUNTY.

New Mines.	Suspended.
Orr	Young
Mt. Ephraim No. 2.....	Curtis
McClintock No. 3.....
Taylor No. 2.....
Anderson
Pickinpaw
Franklin No. 4.....
Little
.....
.....

PER

New Mines.	
No. 18 or Jobs.....	Ho
.....	Ha
.....	Cr
.....	C
.....	1
	and
	se ins
	two
	et; one
	teen by D.
	ety by D. B
	by Thomas A
	g-two by James
	ty-two by Wm. K
New Mines.	nd seventy-eight by

which follows shows the
made in Jackson county, 1
also that one mine in the sam
was one visit more than was
in Perry county one hundred ar
ek one hundred and fifty-three; in
Columbiana, one hundred and thir
New M and twenty-four, and in Tuscarawas c

per 404 were visited at least once during
Department. Of these 115 were visited to

TABLE SHOWING NUMBER OF VISITS MADE BY EACH INSPECTOR DURING THE YEAR.

Name of Inspector.	No. of Mines Visited Once.	No. of Mines Visited Twice.	No. of Mines Visited Three Times.	No. of Mines Visited Four Times.	No. of Mines Visited Five Times.	No. of Mines Visited Six Times.	No. of Mines Visited Seven Times.	No. of Mines Visited Eight Times.	No. of Mines Visited Nine Times.	No. of Mines Visited Ten Times.	No. of Mines Visited Eleven Times.	No. of Mines Visited Twelve Times.	No. of Mines Visited Thirteen Times.	Totals
No. of Visits,....	1	2	3	4	5	6	7	8	9	10	11	12	13	
Chief Inspector...	20	5	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	33
Llewellyn	40	12	7	12	2	4	5	1	2	1	2	.....	1	232
Williams	75	14	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	118
Hull	84	15	5	2	2	1	.....	1	1	.....	.....	.....	.....	190
Wilson	174	16	18	7	9	6	3	.....	.....	.....	.....	.....	.....	390
McGough	30	15	24	12	8	1	1	.....	.....	.....	.....	.....	.....	233
Jas. P. Davis.....	36	23	12	3	3	1	3	.....	.....	.....	.....	.....	.....	172
Moore	42	19	16	6	4	3	2	2	1	2	1	1	.....	271
Reese Davis	20	11	9	9	1	3	3	1	.....	1	1	.....	.....	173
Totals	471	130	97	61	29	19	17	5	5	4	4	1	1	1,798

TABLE SHOWING THE NUMBER OF VISITS MADE IN EACH DISTRICT DURING THE YEAR.

Districts.	No. of Mines Visited Once.	No. of Mines Visited Twice.	No. of Mines Visited Three Times.	No. of Mines Visited Four Times.	No. of Mines Visited Five Times.	No. of Mines Visited Six Times.	No. of Mines Visited Seven Times.	No. of Mines Visited Eight Times.	No. of Mines Visited Nine Times.	No. of Mines Visited Ten Times.	No. of Mines Visited Eleven Times.	No. of Mines Visited Twelve Times.	No. of Mines Visited Thirteen Times.	Totals.
First District....	38	12	5	13	2	4	4	.....	4	3	.....	2	1	294
Second District...	64	20	12	4	6	2	.....	1	2	1	.....	1	.....	246
Third District ...	174	16	18	7	9	6	3	.....	.....	.....	.....	.....	.....	390
Fourth District...	30	15	22	13	9	1	1	.....	.....	.....	.....	.....	.....	236
Fifth District....	36	22	13	2	2	1	4	.....	1	.....	.....	.....	.....	180
Sixth District	42	19	16	6	4	3	2	2	1	2	1	1	.....	272
Seventh District..	20	11	9	9	1	3	3	1	.....	.....	1	1	.....	180
Totals	404	115	95	54	33	20	17	4	8	6	2	5	1	1,798

SCALES TESTED.

Occasional requests come to the Department to have scales tested for the reason that disputes often arise as to their accuracy. It is the policy of the Department to have these requests made by the Mine Committee in the prescribed form as provided for in Section 305 of the Revised statutes. This becomes necessary from the fact that in former years great expense and inconvenience were occasioned by irresponsible and disinterested parties asking that tests be made. Under the new order of things but little difficulty is encountered, and in most instances the differences are adjusted with little or no trouble.

One hundred and twelve sets of scales were tested during 1899, as compared with ninety-nine sets for the year 1898, an increase of thirteen. The testing took place in fifteen of the thirty counties that produce coal, Ark leading with twenty-eight. In Tuscarawas county twenty-two sets were tested. Forty-six per cent. of the entire number of scales tested took place in these two counties.

Of the number of sets of scales tested ninety-three were found to be correct, and nineteen incorrect. The accompanying table is designed to exhibit the date of each inspection, the name of the mine, also the name of the inspector, and the result obtained.

SCALES TESTED AND MINE CARS MEASURED.

ATHENS COUNTY.

Date.	Name of Mine.	Name of Owner.	By Whom Tested.	Result.
1898. Dec. 22	Broadwell	O. Brent Guard.	L. W. Hull.	Found correct.
1899. Feb. 16	No. 4	W. P. Rend & Co.	"	Found correct.
Feb. 20	Hiawatha	Sunday Creek Coal Co.	"	"
April 7	Black Diamond	Black Diamond Coal Co.	"	"
Aug. 3	Minker Run	Hocking Valley Coal Co.	D. H. Williams	"
Aug. 11	Sunday Creek No. 10.	Sunday Creek Coal Co.	"	2 sets tested. No. 1, correct. No. 2, 5 pounds in favor of the miner.
Sept. 8	Sedalia	Sedalia Coal Co.	"	Accurate.
Sept. 27	Sedalia	"	"	"

BELMONT COUNTY.

Date.	Name of Mine.	Name of Owner.	By Whom Tested.	Result.
1898. Dec. 23	Franklin	Owen Meehan	Thomas McGough.	Found correct.
1899. Feb. 28	Taggarts	Joseph Schindler	Thomas McGough.	Found correct.
Feb. 28	Boggs	E. N. Boggs.	"	"
Oct. 9	Wheeling Creek.	Pittsburgh & Wheeling Coal Co.	"	"
Nov. 9	Standard	Alex. Neff	"	"
Nov. 10	Aetna Standard.	Aetna Standard Steel & Iron Wks.	"	"

CARROLL COUNTY.

Date.	Name of Mine.	Name of Owner.	By Whom Tested.	Result.
1899. Mar. 24	Davis No. 3.	R. H. Wainright.	James P. Davis.	Found correct.
Sept. 9	"	"	"	R. R. scales found incorrect.
Sept. 9	"	"	"	Hopper scales correct.
Sept. 26	"	"	"	Found correct.
Oct. 16	Linden Nos. 1, 2 and 3.	Davis Railway Co.	"	"
Oct. 20	"	"	"	"

COLUMBIANA COUNTY.

Date.	Name of Mine.	Name of Owner.	By Whom Tested.	Result.
1899. Jan. 24	Salem	Salem Coal Co.	Rees T. Davis.	Correct. (Two sets.)
Feb. 22	State Line	State Line Coal Co.	"	"
Mar. 1	Cherry Valley No. 3.	Cherry Valley Iron Works.	"	"
Mar. 1	Salem	Salem Coal Co.	Rees T. Davis.	Correct. (Two sets.)
Aug. 3	Fairfield No. 2.	Fairfield Coal Co.	"	"
Oct. 6	Dewey	Elk Run Mining Co.	"	"

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MINI TESTED SCALES

COSHOCK

Date.	Name of Mine.	Name of Owner.	By Whom Tested.	
1899. April 27 April 28 Oct. 10	Conley No. 2..... Morgan Run..... Conesville	John Conly Morgan Run Coal Co..... David Davis	Thomas McGough..... " .. " ..	Correct. " .. " ..

GUERNSEY COUNTY.

Date.	Name of Mine.	Name of Owner.	By Whom Tested.	Result.
1899. May 5 May 24 Sept. 6	Klondike .. Hartford .. Klondike ..	Loomis-Moss Coal Co. J. W. Ellsworth & Co. Loomis-Moss Coal Co.	Thomas McGough..... " .. " ..	Correct. " .. " ..

HOCKING COUNTY.

Date.	Name of Mine.	Name of Owner.	By Whom Tested.	Result.
1899. 7	New Pittsburgh No. 7.....	New Pittsburgh Coal Co.....	Samuel Llewellyn.....	Correct.
Feb. 15	New Pittsburgh No. 3.....	"	"	"
Sept. 21	N. Pittsb. No. 6, Cawth'ne.	"	"	"

JACKSON COUNTY.

Date.	Name of Mine.	Name of Owner.	By Whom Tested.	Result.
1899. 3	Wainright	Wainright Coal Co.....	Samuel Llewellyn.....	Incorrect.
Feb. 25	Emma No. 3.....	Emma Coal Co.....	"	Correct.
May 15	Wainright	Wainright Coal Co.....	"	Varied slightly.
June 10	"	"	"	"
Oct. 3	Eclipse	Eclipse Coal Co.....	"	Slightly incorrect.
Oct. 9	Superior No. 2.....	Superior Coal Co.....	"	Correct. (Two sets.)
Oct. 24	Standard	Standard Coal Co.....	"	Incorrect.

SCALES TESTED AND MINE CARS MEASURED — Continued.

JEFFERSON COUNTY.

Date.	Name of Mine.	Name of Owner.	By Whom Tested.	Result.
1899. June 13	Rolling Mill No. 2.....	Wm. Banfield	James P. Davis.....	Correct.

MAHONING COUNTY.

Date.	Name of Mine.	Name of Owner.	By Whom Tested.	Result.
1899. Mar. 1 Mar. 2	Stoffers	Washingtonville Mining Co.....	Rees T. Davis.....	One set accurate, one inaccurate.
	McKinley	Mahoning Coal Co.....	"	Correct.

MEDINA COUNTY.

Date.	Name of Mine.	Name of Owner.	By Whom Tested.	Result.
1900				

SCALES TESTED AND MINE CARS MEASURED — Continued.

PERRY COUNTY.

Date.	Name of Mine.	Name of Owner.	By Whom Tested.	Result.
1899. Mar. 6	Block North Side.	Tague & Bennet.	David B. Wilson.	Correct.
April 14	Shawnee Valley.	Maynard Bros.	"	"
Aug. 1	Briar Hill.	J. G. Underwood.	"	"
Aug. 10	Congo No. 1.	Congo Mining Co.	"	"
Aug. 10	" No. 2.	"	"	"
Oct. 14	No. 3 Rock Run.	C. & H. C. & I. Co.	"	Incorrect. (Two sets.)
Nov. 13	Peacock	Roberts & Davis.	"	Correct.

PORTAGE COUNTY.

Date.	Name of Mine.	Name of Owner.	By Whom Tested.	Result.
1899. Oct. 29	Hutson No. 5.	Hutson Coal Co.	Rees T. Davis.	Inaccurate.

SCALES TESTED AND MINE

STARK

Date.	Name of Mine.	Name of Owner.	By Whom Tested.	Result.
1898.				
Nov. 18	Elm Run No. 3.	Elm Run Coal Co.	Wm. K. Moore.	Correct.
Nov. 28	E. G. Krause No. 5.	E. G. Krause & Co.	"	"
Dec. 10	Upper Pigeon Run.	Upper Pigeon Run Coal Co.	"	"
Dec. 14	Young's Shaft.	I. F. Pocock.	"	(Two sets.)
1899.				
Jan. 23	Drake Mine.	Drake Coal Co.	Wm. K. Moore.	Correct.
Feb. 3	East Brookfield.	Massillon Mining Co.	"	"
Feb. 19	Western Ohio Mine.	West Lebanon Coal Co.	"	"
1898.				
Mar. 8	Robertson Mine.	I. J. Robertson.	Wm. K. Moore.	Correct.
Mar. 8	Davis Mine.	Evan S. Davis.	"	"
Mar. 8	Carr Mine.	A. M. Carr.	"	"
Mar. 10	Camp Creek.	O. Young Coal Co.	"	"
May 25	Minglewood No. 3.	James Mullins.	"	"
July 24	Western Ohio Mine.	West Lebanon Coal Co.	"	"
Aug. 8	Clover Hill.	Fox Lake Coal Co.	"	"
Sept. 5	Minglewood No. 4.	James Mullins.	"	"
Sept. 11	"	"	"	(Two sets.)
Sept. 20	New Greenville.	Howells Mining Co.	"	Incorrect.
Oct. 2	"	"	"	Correct.
Oct. 3	Young's Shaft.	J. F. Pocock.	"	Incorrect.
Oct. 3	Minglewood No. 4.	James Mullins.	"	Correct.
Oct. 9	North Massillon No. 2.	Ridgeway, Burton & Co.	"	"
Oct. 9	Drake Mine.	Drake Coal Co.	"	"
Oct. 10	Minglewood No. 2.	James Mullins.	"	"
Oct. 30	Eureka Mine.	Eureka Coal Co.	"	"
Oct. 31	New Greenville.	Howell Mining Co.	"	"
Nov. 1	Minglewood No. 3.	James Mullins.	"	"

TUSCARAWAS COUNTY.

Date.	Name of Mine.	Name of Owner.	By Whom Tested.	Result.
1898. Nov. 30	Goshen Mine.....	Goshen Coal Co.....	Wm. K. Moore.....	Correct.
1899. Feb. 10	Twin City.....	Dennison Coal Co.....	"	Incorrect.
Feb. 18	"	"	"	"
Mar. 1	"	"	"	Correct.
Mar. 17	Wainright No. 4.....	Midvale Goshen Coal Co.....	"	"
Mar. 17	Rolling Mill Mine.....	Dennison Rolling Mill Co.....	"	"
April 7	Brockhill No. 3.....	Midvale Goshen Coal Co.....	"	"
April 7	Midvale No. 2.....	"	"	"
April 14	Swan Mine.....	Swan Coal Co.....	"	"
April 20	Rock Cut.....	Geo. Markley	"	"
1899. July 6	East Goshen.....	East Goshen Coal Co.....	Wm. K. Moore.....	Correct.
July 7	Twin City.....	Dennison Coal Co.....	"	Incorrect.
July 10	"	"	"	"
July 11	"	"	"	"
July 18	"	"	"	"
July 19	Goshen Mine.....	Midvale Goshen Coal Co.....	"	New Hopper scales correct.
July 21	American Fire Brick Co..	American Fire Brick Co.....	"	Correct.
Aug. 2	"	"	"	Incorrect.
Aug. 17	Brockhill No. 3.....	Midvale Coal Co.....	"	Correct.
Oct. 5	East Goshen No. 2.....	East Goshen Coal Co.....	"	"
Oct. 21	Buckhorn Mine.....	Buckhorn Coal Co.....	"	"

TABLE SHOWING THE NUMBER OF SCALES TESTED, AND RESULT OF THE EXAMINATION FROM 1887 TO NOVEMBER 15, 1899.

Years.	Number Sets of Scales Tested.	Number Sets Found Correct.	Number Sets Found Incorrect.	Remarks.
1887....	74	.....	.....
1888....	55	41	14	
1889....	48	33	14	
1890....	59	46	20	
1891....	61	37	25	
1892....	86	62	24	8 in favor company, 6 in favor miners.
1893....	120	81	39	12 in favor company, 3 in favor miners.
1894....	64	37	27	15 in favor company, others not known.
1895....	96	65	31	15 in favor company, 14 in favor miners.
1896....	93	65	28	5 against miner, 1 against operator.
1897....	77	59	18	3 against miner, 3 against operator.
1898....	99	82	17	4 against miner, 1 against operator.
1899....	112	93	19	
Total.	970	.....	.....

PERMANENT IMPROVEMENTS IN THE MINES OF THE STATE.

Permanent improvements were made in two hundred instances in 1899 as compared with two hundred and thirteen in 1898, a loss of thirteen. Fifty-one of these improvements are accredited to the First District; twelve to the Second; twelve to the Third; twenty-nine to the Fourth; twenty-four to the Fifth; fifty to the Sixth; and twenty-two to the Seventh.

Thirty-six furnaces were built in 1899, a decrease of eight as compared with the year 1898. The other improvements made were fans, twenty-five; air shafts, sixty; second openings, forty-five; safety catches, eleven; stairways, thirteen; speaking tubes, seven; ventilating baskets, three.

The building of furnaces, employment of fans, sinking of air shafts, construction of second openings, and erection of stairways, as well as the several other appliances brought into use for the health and protection of the men who delve under ground for a livelihood, should be encouraged not only because of the spirit of enterprise thus shown, but also from a humanitarian stand point.

Ready means of ingress and egress should always occupy a prominent place in the plans for opening and operating coal mines, as upon these combined with good air, the health and life and success of the miner largely depends.

SHOWING THE NUMBER AND CHARACTER OF THE PERMANENT IMPROVEMENTS MADE IN THE MINES OF THE STATE DURING THE INSPECTION YEAR.

Year of District Inspector.	Furnaces.	Fans.	Air Shafts.	Second Openings.	Safety Catches.	Stairways.	Speaking Tubes.	Ventilating Baskets.	Totals.
1898	7	7	17	10	2	3	4	1	51
1899	1	4	2	2		2	1		11
1900	4	1	5	2					12
1901	5	3	7	12		2			29
Davis	10	2	5	4	2			1	24
Davis	9	6	15	9	4	4	2	1	50
Davis		2	9	6	3	2			22
Totals	36	25	60	45	11	13	7	3	200

SHOWING THE NUMBER AND CHARACTER OF THE PERMANENT IMPROVEMENTS MADE IN THE MINES OF THE STATE FROM 1884 TO 1899 INCLUSIVE.

Years.	Furnaces.	Fans.	Air Shafts.	Second Opening.	Safety Catches.	Stairways.	Speaking Tubes.	Ventilating Baskets.	Totals.
1884	43	10							53
1885	45	19	45		13				122
1886	13	6	22	10		12			63
1887	39	9	50	7		8			113
1888	43	4	52	17	13	12			141
1889	42	13	57	21	7	3	3		146
1890	57	20	66	46	8	11	4		212
1891	53	17	55	26	19	19	5		194
1892	37	26	65	27	13	7	4	2	181
1893	77	35	131	67	16	19	5	4	354
1894	55	18	106	60	7	11	3	9	269
1895	66	17	105	60	9	11	3	13	284
1896	56	21	93	81	5	7	3	14	280
1897	40	22	75	44	4	7	3	9	204
1898	44	17	73	45	7	11	1	15	213
1899	36	25	60	45	11	13	7	3	200
Totals	746	279	1,055	556	132	151	41	69	3,029

MINES WHICH GENERATE LIGHT CARBURETTED HYDRO- GAS — (FIRE DAMP).

Dreaded fire damp, since the days of the beginning, has proven to be a bane to the coal miner's life. Comparatively speaking, it is found in but few mines to any considerable extent, but its lurking places are shunned, and its vicious clutches avoided, as are the fangs of the poisonous boa-constrictor, or the coils of the treacherous cobra.

In thirty-nine mines distributed through ten counties, carburetted hydrogen gas (fire damp) was reported as having been found during the year 1899, being four more than was reported for the year preceding. Rara Avis mine is added to the list in Athens county, which reports nine mines generating fire damp. Guernsey with a total of ten leads the list. Old Orchard appears as a new addition to mines containing fire damp. Greenamyer Shaft in Mahoning is added. Minglewood No. 4 and Warwick mines are added in Stark county, and Minglewood is taken from that county.

The reports give ten accidents as having been due to fire damp, six of which were of minor character, though none proved fatal. This report is very gratifying when we take into consideration the treachery of this noxious gas and the number of mines in which it is to be found.

**MINES WHICH GENERATE LIGHT CARBURETTED HYDROGEN GAS
(FIRE DAMP).**

	ATHENS COUNTY.	
Daleton	Oakdale	Phoenix No. 2.
Rends No. 4.	Rends No. 6.	No. 10.
No. 16.	No. 24.	Rara Avis.
	BELMONT COUNTY.	
Captina	Schnegg	
	COLUMBIANA COUNTY.	
Central	Cherry Valley No. 3.	Pine Hill.
New Shaft. .....	.....
	GUERNSEY COUNTY.	
Walhourding	Cisco	Hartford.
Trail Run.	Central	Imperial.
Kings	Klondike	Forsythe.
Old Orchard. .....	.....
	JACKSON COUNTY.	
Fluhart No. 3.	Wainright	
	JEFFERSON COUNTY.	
High Shaft.	Rolling Mill No. 2.	
	MAHONING COUNTY.	
Greenamyer Shaft. .....	.....
	NOBLE COUNTY.	
Glenwood .....	.....
	PERRY COUNTY.	
Rends No. 3. .....	.....	Chestnut Hill No. 2.
	PORTAGE COUNTY.	
Hutson No. 4. .....	.....
	STARK COUNTY.	
Minglewood No. 3.	Minglewood No. 4.	New Greenville.
Young's Shaft. .....	.....	Warwick Mine.

CHARACTER OF DEVELOPMENTS AND MODE OF VENTILATION.

The openings of coal mines are of three kinds, viz., drift, shaft and slope. The first is horizontal, the second perpendicular, and the third oblique. According to the returns, seven hundred and eighty-nine of the mines of Ohio are reached by means of drift openings, one hundred and forty-five are reached by means of shafts, and one hundred and thirty-three by slope. The reports fail to show the kind of openings for sixty-five small mines, but it is reasonable to assume that the coal of most of them is reached through drifts. In 1898 the drift openings numbered nine hundred and twenty-one, while there were one hundred and forty-three shafts and one hundred and forty-five slopes.

Muskingum county leads in the number of drift mines, having one hundred and fourteen within her borders. Tuscarawas county follows with seventy-one; Perry third with sixty-eight; Belmont fourth with sixty-one; Harrison fifth with forty-three; Noble sixth with forty-four; Jackson and Meigs seventh each possessing forty-one; Jefferson eighth with thirty-nine; Columbiana ninth with thirty-seven; and Stark tenth with thirty-one.

Stark county ranks first in the number of shaft mines, her number being thirty-two; other counties follow in this order, Jackson, thirty; Mahoning, sixteen; Athens, ten; Guernsey, and Jefferson, nine each; Columbiana and Perry, six each, and Summit five.

In slopes Stark also leads the list, with twenty; Columbiana has fifteen; Harrison, eleven; Jackson and Mahoning, ten each; Medina, nine; Belmont and Perry, seven each; Summit, six; Guernsey and Tuscarawas, five each; and Carroll, Jefferson and Trumbull, four each.

Ventilation continues to be an all-absorbing topic in its associations with the coal industry. Upon good air almost solely depends the life and health of the miner, and its influence upon the protection of mine property is also very potent. Keen intellects are constantly giving the subject most careful study, and the results, it is gratifying to say, are very satisfactory, because of the fact that new appliances being put into use are making the task of the underground workman less hazardous, as well as saving the property from destruction by explosions, fires, etc.

Last year according to the reports, one hundred and forty-seven mines were ventilated by the use of fans, the number being less by two than for the year 1898. Fan ventilation appears to be in use in eighteen of thirty counties, the exceptions being Coshocton, Gallia, Harrison, Holmes, Lawrence, Morgan, Monroe, Scioto, Summit, Trumbull, Vinton, Washington and Wayne. Thirty-five of the mines of Jackson county employ fans. Athens and Stark each have seventeen ventilated by this process; Columbiana and Guernsey thirteen each; Jefferson and Perry nine each, and Belmont five.

Furnaces used in two hundred and seventy-four mines as a means of ventilation in 1899 as compared with three hundred and seventeen the year before. Belmont has thirty-seven furnaces, this being four more than any other county; Tuscarawas has thirty-three; Perry 23; Muskingum, twenty; Jackson and Stark eighteen each; Jefferson, seventeen; Ashocton, fifteen; Carroll, thirteen; Columbiana, ten.

Fire baskets were employed in forty-one mines, while in thirty-four the current was supplied by the use of steam jets and exhaust pumps. Nature is depended upon to supply ventilation in mines to the number five hundred and twenty-three, in many of which cases breaks and crevices of different character constitute openings of sufficient size to keep a current of air in good motion. The mode of ventilation in one hundred and seven mines is unknown, the greater number of which are small and the air product limited.

Mine No. 10 in Athens county employs a double fan; Crescent in Belmont has two furnaces; Cawthorn in Hocking, has both a fan and furnace as a mode of ventilation; New Pittsburg in Hocking has two fans; Turkey Foot and Chestnut Grove in Summit employ both fan and exhaust steam for ventilating purposes.

TABLE SHOWING THE NUMBER OF MINES EMPLOYING THE VARIOUS METHODS OF VENTILATION AND THE THREE KINDS OF OPENINGS.

Counties.	Character of Opening.					Mode of Ventilation.						
	Drift.	Shaft.	Slope.	Small Mines, Kind of Openings Unknown.	Totals.	Fan.	Furnace.	Fire Basket.	Steam Jet and Exhaust from Pumps.	Natural.	Small Mines, Method of Ventilation Unknown.	Totals.
Athens	30	10	3	2	45	17	11	1	...	11	4	4
Belmont	61	2	7	1	71	5	37	2	1	24	1	1
Carroll	23	2	4	2	31	1	13	1	2	11	3	3
Columbiana	37	6	15	1	59	13	10	4	1	38	3	3
Coshocton	24	...	...	2	26	...	15	2	...	7	2	2
Gallia	4	...	2	2	8	...	4	...	...	1	3	3
Guernsey	16	9	5	...	30	13	5	...	...	12	...	...
Harrison	43	2	11	2	58	...	3	2	...	49	4	4
Holmes	10	...	1	...	11	...	2	...	...	9	...	...
Hocking	18	...	2	...	20	11	...	1	...	6	...	...
Jackson	41	30	10	4	85	35	18	1	1	24	6	6
Jefferson	39	9	4	3	55	9	17	...	1	24	4	4
Lawrence	27	...	...	2	29	...	8	...	...	18	3	3
Mahoning	12	16	10	1	39	3	8	...	6	21	1	1
Medina .....	...	1	9	2	12	1	2	2	5	...	2	2
Meigs	41	1	2	1	45	3	7	1	...	27	7	7
Morgan	2	...	...	...	2	...	2	...	...	...	...	...
Monroe	3	1	...	1	5	1	...	...	...	3	1	1
Muskingum	114	1	3	12	130	2	20	5	...	84	19	19
Noble	44	1	1	4	50	1	3	...	...	36	10	10
Perry	68	6	7	9	90	9	23	4	...	43	11	11
Portage .....	...	4	...	...	4	4	...	...	...	...	...	...
Scioto	7	...	...	1	8	...	...	...	...	7	1	1
Stark	31	32	20	4	87	17	18	7	12	26	7	7
Summit	3	5	6	...	14	...	2	3	2	5	...	...
Trumbull	2	2	4	...	8	...	2	...	2	4	...	...
Tuscarawas	71	...	5	7	83	2	33	5	...	30	13	13
Vinton	13	1	...	1	15	...	7	...	...	7	1	1
Washington	2	3	...	1	6	...	2	...	...	3	1	1
Wayne	3	1	2	...	6	...	2	...	1	3	...	...
Totals	789	145	133	65	1,132	147	274	41	34	523	107	1,

TABLE SHOWING THE NUMBER OF MINES EMPLOYING THE VARIOUS METHODS OF VENTILATION AND THE THREE KINDS OF OPENINGS, FROM 1892 TO 1899 INCLUSIVE.

Years.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.
Drifts	303	676	657	749	821	800	921	789
Shafts	91	121	149	150	149	153	143	145
Slopes	40	61	61	68	66	85	145	183
Small mines, kinds of openings not known.	458	151	296	220	167	190	46	65
Totals	892	1,009	1,163	1,187	1,203	1,228	1,255	1,182
Fans	127	141	139	134	134	149	149	147
Furnaces	253	323	264	278	281	280	317	274
Fire basket.....	11	23	32	36	38	51	45	41
Steam jet and exhaust from pumps.....	30	39	43	48	52	49	47	34
Natural	205	316	378	452	528	516	636	523
Small mines, mode of ventilation not known	226	167	309	242	179	200	73	107
Totals	892	1,009	1,165	1,190	1,212	1,245	1,267	1,126

POWDER CONSUMED IN MINES.

The accompanying table is one of much importance and interest to both the mine operator and the miner. The consumption of powder in mining coal is always an interesting one to study, and the more it is studied the more practical does the miner become in his work. Much or little powder may be used in the production of a given amount of coal, and just the right amount to bring the best results is the point that is frequently hard to determine. Of course the quality and thickness of the vein of coal constitute important factors toward the proper solution of this very important question, and naturally in this, as in everything else, the trained workman, the man who is familiar with all of the conditions, has a decided advantage over the amateur.

During the inspection year ending November 15th, 1899, reports were received from five hundred and nineteen firms, while three hundred and eighty-seven failed to report. The firms reporting produced 12,763,154 tons of coal, being 80 and 2-10 per cent. of the entire tonnage of the State, and in the production thereof 212,926 kegs of powder were consumed, making an average of 59 and 19-21 tons of coal mined for each keg of powder used. A keg of powder contains twenty-five pounds, therefore the total amount of powder used aggregated 5,324,900 pounds or 2662½ tons.

Going back a few years it is found that in the year 1892 the average number of tons of coal mined for each keg of powder used was 63 1-3;

in 1893, 64; in 1894, 61 1-10; in 1895 58; in 1896, 55½; in 1897 55 1-3; in 1898, 59 2-3, and in 1899, 59 19-21, or nearly sixty.

In Gallia county during the year the average number of tons of coal produced for each keg of powder consumed was 151; Jefferson and Monroe, 150; in Hocking, 135; in Athens, 128; in Guernsey, 126; in Columbiana, 123; in Holmes, 113; in Belmont, 97; in Coshoccton, 95; and in Harrison, 85; Mahoning county ranks lowest with 17; Summit shows, 23, Stark, 29, Jackson, 33; Trumbull, 40; Tuscarawas, 59; and Morgan, 80.

Time for shooting continues to be a subject over which there is much contention, and it seems to be a very difficult matter in many mines to determine a system of uniformity in this regard. Some miners governed by different conditions, insist upon shooting at any and all hours, a practice that is to be deplored, and which when done at inopportune times always brings discomfort to their fellow craftsmen. As far as possible, shooting should be done near the hour for quitting in order that the fumes of powder smoke and the noxious, poisonous gases that are oftentimes generated thereby may pass off and be displaced by fresh, healthful air by the following day. Miners and mine owners are urged to use every precaution and influence at their command, to the end that much needed improvements in this direction may be brought about.

HOWING THE AMOUNT OF POWDER CONSUMED IN THE
S OF THE STATE AND THE NUMBER OF TONS OF COAL
UCED TO THE KEG.

Counties.	Number of Firms which Reported.	Number of Firms which did not Re- port.	Tons Mined by Firms which Reported.	Number of Kegs Re- ported as Used.	Number of Tons Mined to Keg of Powder Used.
.....	25	8	1,336,532	10,487	128
.....	36	29	683,362	7,033	97
.....	15	7	198,258	6,183	32
.....	31	14	718,905	5,822	123
.....	12	7	281,677	2,977	95
.....	3	1	14,310	95	151
.....	14	9	1,240,823	9,858	126
.....	12	41	9,887	116	85
.....	4	7	6,210	55	113
.....	6	4	927,894	6,870	135
.....	53	5	2,175,574	65,122	33
.....	14	27	738,143	4,906	150
.....	18	4	120,106	2,618	46
.....	8	27	5,719	329	17
.....	10	.....	158,216	5,214	30
.....	27	6	206,884	2,795	74
.....	2	.....	24,881	311	80
.....	1	3	2,400	16	150
.....	41	72	143,046	3,924	36
.....	19	28	55,492	666	83
.....	40	34	1,428,466	17,497	81
.....	1	1	114,778	3,026	38
.....	3	4	2,118	68	31
.....	44	22	1,026,806	34,578	29
.....	13	1	84,920	3,701	23
.....	4	3	10,287	257	40
.....	52	14	962,594	16,212	59
.....	6	5	67,639	1,725	39
.....	3	2	672	13	52
.....	2	2	16,555	522	31
ls	519	387	12,763,154	212,996	5944

in 1893, 64; in 1894, 61 1-10; in 1895 58; in 1896, 55 in 1898, 59 2-3, and in 1899, 59 19-21, or nearly sixty.

In Gallia county during the year the average number produced for each keg of powder consumed was 151 in roe, 150; in Hocking, 135; in Athens, 128; in Grubiana, 123; in Holmes, 113; in Belmont, 97; in Harrison, 85; Mahoning county ranks lowest, 23, Stark, 29, Jackson, 33; Trumbull, 40; Tuscarawas, 41.

Time for shooting continues to be much contention, and it seems to be a very difficult matter to determine a system of uniformity in the method governed by different conditions, insisted upon by the miners as a practice that is to be deplored, and which sometimes always brings discomfort. As far as possible, shooting should be done in the morning, so that the fumes of powder smoke are oftentimes generated throughout the day, and the healthful air by the following day. It is recommended to use every precaution to avoid the use of powder, much needed improvement.

On April 1st, 1900, the price paid for pick lump coal, being an average of 422 tons for each miner, was \$210.32 as compared with \$242.97 for the year 1899. The average number of miners employed was 152 1-3, and further calculations demonstrate that the average wages of the pick miner amounted to \$1.55. In 1898 the average was \$1.61; in 1897, \$1.27, and in 1896, \$1.47. For mine run the price paid in 1899 was forty-seven and one-half cents, being an increase of seven and one-half cents over the price paid under the preceding contract. Mine run includes all coal before being cut into lump. It is two-sevenths more than the lump product that amounts to the waste caused by cutting, etc. However, this two-sevenths is placed in the market in two grades, nut and pea or slack, both of which grades are used by large manufacturing establishments for steam production.

The total tonnage of coal mined in Ohio in 1899 was 15,745,260 tons of which amount 6,745,260 were produced by means of machine. Experience has proven that from the use of the pick lump coal seventy-two per cent. of the coal produced, while in machine mining the average is seventy-eight per cent., the difference no doubt, being caused by the larger cut being necessary in the former than in the latter way. The prices were paid operators of bar or chain machines, the one being paid one and one-half cents per ton for room mining, which is known as the "bar" work, while those engaged in narrow work, being entries and

ANNUAL REPORT

Record of Hocking Valley Mining.

[illegible]

⁶ See Resolution 2 of Columbus Day Scale of March 8, 1898, on page 65 of Report of Pittsburgh Convention, 1899.

INSPECTOR OF MINES.

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Record of Hocking Valley Mining.		1892, 1893, up to February 17, 1894.	From February 17, 1894, to April 21, 1894.	Strike April 21 to June 11, 1894, then to June 1, 1895.	June 1, 1895, to October 1, 1895.	October 1, 1895, to March 1, 1896.	March 1, 1896, to October 1, 1896.	October 1, 1896, to January 1, 1897.	January 1, 1897, to strike of July 4, 1897.	Strike July 4 to September 1, 1897.	September 1, 1897, to April 1, 1900.	To prevail April 1, 1901.
<i>Machine.</i>												
Cutting, by												
Bar or chain machine rooms		\$0 08	\$0 07	\$0 08	\$0 07	\$0 07½	\$0 08	\$0 06	\$0 07	\$0 07½	\$0 08	\$0 09
" " entries		11	10	11	10	10½	11	09	10	10½	11	12½
Punching machine rooms		12½	11½	12½	11½	12	12½	10½	11½	12	12½	13½
" " entries		13½	12½	13½	12½	13	13½	11½	12½	13	13½	14½
Loading --												
In rooms		35	25	30	25½	27½	30½	22½	25½	28	33	41
" with hand drilling		38	28	33	28½	30½	33½	25½	28½	31	36	44
In entries		43½	31½	36	31½	33½	36½	28½	31½	34	41½	51½
" with hand drilling		46½	34½	39	34½	36½	39½	31½	34½	37	44½	54½
Break throughs in entries		Ent. pr.	Ent. pr.	Ent. pr.	Ent. pr.	Ent. pr.	Ent. pr.	Ent. pr.	Ent. pr.	Ent. pr.	Ent. pr.	Ent. pr.
* " rooms		41	29½	35	29½	32½	35½	26½	29½	32½	39	48½
* " with hand drilling		44	32½	38	32½	35½	38½	29½	32½	35½	42	51½
Drilling, by hand, per ton		03	03	3	03	03	03	03	03	03	03	03
" by machine, per ton		02	01½	2	01½	01½	02	01½	01½	01½	02	02½
M'chn by the day, runner and helper jointly		Ent. pr	Ent. pr.	Ent. pr.	Ent. pr.	Ent. pr.	Ent. pr.	Ent. pr.	Ent. pr.	Ent. pr.	Ent. pr.	Ent. pr.
Room turning, cutter and loader		Ent. pr	Ent. pr.	Ent. pr.	Ent. pr.	Ent. pr.	Ent. pr.	Ent. pr.	Ent. pr.	Ent. pr.	Ent. pr.	Ent. pr.

* Machine haulers heretofore have been classed with couplers, greasers, etc.

Columbus, Ohio, March 6, 1900,

F. S. BROOKS, Secretary.

APPOINTMENTS.

With but one exception the force of the Department remained the same as the preceding year.

On the 15th day of July, 1899, Mr. Lucius W. Hull, of Gloucester, Ohio, tendered his resignation as Inspector in the Second District, and Mr. David H. Williams, of the same place was appointed as his successor.

The appended table shows all of the appointments since the organization of the Department.

NAME OF INSPECTOR.	COUNTY.	Appointed.	TERM BEGAN.	TERM EXPIRED.	TIME SERVED.	REMARKS.
<i>Chief Inspectors.</i>						
Andrew Roy	Trumbull	Wm. Allen, D.	April 6, 1874	April 6, 1878	4 years.....	
Jas. D. Poston, D.	Hocking	R. M. Bishop, D.	Nov. 6, 1878	Nov. 15, 1879	1 year, 7 mos.	Resigned.
David Owens, D.	Trumbull	"	Nov. 16, 1879	Feb. 12, 1880	3 months.....	Not confirm. by Senate.
Andrew Roy, R.	Jackson	Chas. Foster R.	Feb. 12, 1880	Feb. 16, 1884	4 years.....	Resigned.
Thos. B. Bancroft, D.	Galua	Geo. Hoadly, D.	Feb. 16, 1884	April 1, 1888	4 yrs., 1½ mos.	
Rob't. M. Haseltine, R.	Mahoning	J. B. Foraker, R.	April 1, 1888	" 30, 1888	1 month.....	Reappointed.
"	"	"	May 1, 1888	" 30, 1892	4 years.....	Reappointed.
"	"	Wm. McKinley, Jr., R.	" 1, 1892	" 30, 1896	4 "	Incumbent.
"	"	Asa. S. Bushnell, R.	" 1, 1896	" 30, 1900	4 "	
<i>District Inspectors.</i>						
Jacob J. Klein, R.	Stark	Chas. Foster, R.	June 4, 1881	Jan. 26, 1883	2 yrs., 7½ mos.	Resigned.
Jno. P. Williams, R.	Trumbull	"	Jan. 26, 1883	Feb. 16, 1884	1 yr., 21 days.	
Austin P. King, Jr., D.	Columbiana	Geo. Hoadly, D.	Feb. 16, 1884	April 30, 1886	2 yrs., 2½ mos.	Resigned.
Wm. Dalrymple, D.	Athens	"	May 1, 1884	Mar. 1, 1888	3 yrs., 10 mos.	Resigned, held over as no appointment was made at the expiration of his term, May 1, 1887.
Wm. A. Davis, D.	Guernsey	Geo. Hoadly, D.	May 1, 1884	Feb. 15, 1886	1 yr., 9½ mos.	Resigned.
Joseph L. Morris, R.	Coshocton	J. B. Foraker, R.	Feb. 15, 1886	June 1, 1889	3 yrs., 2½ mos.	Resigned.
D. J. Harry, R.	Jackson	"	April 1, 1888	April 30, 1888	1 month.....	Reappointed.
"	"	"	May 1, 1888	" 30, 1891	3 years.....	
David E. Evans, R.	Meigs	"	" 1, 1888	" 30, 1891	3 "	
Jas. W. Haughee, R.	Athens	"	" 1, 1888	" 30, 1891	3 "	
Robert Bell, R.	Stark	"	" 8, 1886	" 30, 1887	11 mos., 23 da.	Reappointed.
"	"	"	" 1, 1887	" 30, 1888	1 year.....	Reappointed.
"	"	"	" 1, 1888	Aug. 11, 1890	2 y., 3 m., 11 d.	Resigned.
Ebenezer Lewis, D.	Summit	Jas. E. Campbell, D.	Aug. 11, 1890	April 30, 1891	8 mos., 20 da.	Reappointed.
"	"	"	May 1, 1891	" 30, 1894	3 years.....	

APPOINTMENTS SINCE THE CREATION OF THE DEPARTMENT—Concluded.

Name of Inspector.	County.	Governor by Whom Appointed.	Term Began.	Term Expired.	Time Served.	Remarks.
<i>District Inspectors—</i>						
<i>Concluded.</i>						
Thos. H. Love.....	Carroll	J. B. Foraker, R.....	June 1, 1889	Aug. 1, 1891	2 yrs., 2 mos.	Reappointed.
" ".....	"	Wm. McKinley, Jr.....	July 15, 1892	April 30, 1894	3 years.....	Reappointed.
Wm. B. Rennie, D.....	Tuscarawas	Wm. McKinley.....	May 1, 1894	Feb. 15, 1898	3 yrs., 9 $\frac{1}{4}$ mos.	Resigned.
Jno. E. Short, D.....	Hocking	Jas. E. Campbell.....	Aug. 1, 1891	July 15, 1892	11 mos., 15 da.	Resigned.
Adam. P. McDonald, D.....	Perry.....	"	May 1, 1891	May 7, 1894	3 yrs., 7 days.	Resigned.
Wm. H. Turner, D.....	Guernsey	"	" 1, 1891	July 15, 1892	1 yr., 2 $\frac{1}{4}$ mos.	made to take effect on July 15th.
Jas. W. Haughee, R.....	Athens	Wm. McKinley.....	June 17, 1892	April 30, 1894	3 years.....	made to take effect on July 15th.
Rob't. H. Miller, R.....	Perry	"	July 15, 1892	April 30, 1894	Resigned before entering on his duties.	Reappointed.
"	"	"	May 1, 1894	July 13, 1898	1 yr., 9 $\frac{1}{4}$ mos.	Reappointed.
Alexander Beattie, R.....	Athens	"	July 15, 1892	July 15, 1895	4 yrs., 2 $\frac{1}{4}$ mos.	Reappointed.
Jno. P. Jones, R.....	Stark	"	15, 1895	" 15, 1898	3 years.....	Reappointed.
Sam'l. Llewellyn, R.....	"	"	15, 1892	" 15, 1895	3 "	Reappointed.
"	Jackson	"	15, 1895	" 15, 1897	2 yrs., 5 $\frac{1}{4}$ mos.	Resigned.
Thomas McGough	Belmont	Asa S. Bushnell.....	May 9, 1894	Dec. 31, 1897	3 yrs., 12 da.	Reappointed.
"	"	Wm. McKinley.....	21, 1897	May 21, 1897	2 y., 11 m., 9 d.	Incumbent.
Rees T. Davis.....	Columbiana	Asa S. Bushnell.....	" 1, 1897	April 30, 1900	3 years.....	Reappointed.
"	"	Wm. McKinley.....	" 1, 1894	" 30, 1900	3 "	Incumbent.
Wm. K. Moore.....	Stark	Asa S. Bushnell.....	" 1, 1897	" 30, 1897	3 "	Reappointed.
"	"	"	Jan. 17, 1898	" 30, 1900	3 "	Incumbent.
James P. Davis.....	Carroll	"	July 16, 1898	July 15, 1898	6 months.....	Reappointed.
Lucius W. Hull.....	Athens	"	Feb. 15, 1898	" 15, 1901	3 years.....	Incumbent.
David B. Wilson.....	Perry	"	July 15, 1898	April 30, 1900	2 y., 2 m., 15 d.	Incumbent.
David H. Williams.....	Athens	"	" 15, 1899	July 15, 1899	1 year.....	Resigned.
				April 30, 1900	1 y., 9 m., 15 d.	Incumbent.
				July 15, 1901	2 years.....	Incumbent.

MINE MAPS.

the law, owners of mining property are required to keep the Department up-to-date maps of their several mines. The this law, however, have not been universally complied with, every effort has been made in that direction. In many instances have never been received, while in others they are so old or so to be of little or no value. The inside of a coal mine is constantly changing, and new maps should be made at least

ness is frequently the cause of failure on the part of the to fulfill the requirements of the law, but little or no attention to the numerous requests that are from time to time to office. It is difficult indeed to figure out the reason why he should be so negligent in his duty especially when we are to take into consideration the fact that by so doing he is injuring himself as much as any one else. We do not think that any one who is at all conversant with the mining industry will attempt to dispute the statement that an accurate map is very essential to the successful operation

the year 1897, mine maps to the number of two hundred and were on file with the Department, and during that year one hundred and seventy-eight were added. In 1898, one hundred and ninety were added, while in 1899 the number reached one hundred and making a total of seven hundred and thirty one.

TABLE DESIGNED TO EXHIBIT THE NUMBER OF MAPS THAT HAVE BEEN FILED AS THEY OCCUR IN EACH COUNTY IN THE STATE, FROM 1874 TO 1899 INCLUSIVE.

Counties.	Map Filed.						Total Number.
	Prior to 1884.	Prior to 1888.	Prior to 1897.	During 1897.	During 1898.	During 1899.	
Athens	10		28	23	10	20	91
Belmont	6		8	17	10	6	47
Carroll		2	5		6	2	15
Columbiana	12	1	8	23	6	3	53
Coshocton			3	5	4	1	13
Gallia				1			1
Guernsey	2		4	7	1	10	24
Harrison				1	1		2
Holmes							
Hocking	1	3	12	8	3	5	32
Jackson	1		8	15	22	17	63
Jefferson	2		7	10	1	11	33
Lawrence	3		4	2	2		11
Mahoning	4		13	7	2	4	26
Medina	1	2	5	1	3	3	15
Meigs	6		8	6			20
Morgan			1	1		1	3
Monroe							
Muskingum			4	6	7	6	23
Noble		1			1		2
Perry	10		17	18	13	35	93
Portage			4		1	4	9
Scioto				1	1		2
Stark	7		21	11	15	10	64
Summit	3	1	7	2		1	14
Trumbull	10	1	10	2			23
Tuscarawas	1	1	10	6	7	10	35
Vinton	2			2		1	5
Washington							
Wayne	1		1	3	3	2	10
Totals	82	12	188	178	119	152	731

SEALING OIL AND GAS WELLS.

Section 4 of an Act passed by the Seventy-third General Assembly Ohio, April 23rd, 1898 provides:—"It shall be the duty of the owner any lands, or of the owner, or operator of any well drilled for oil or s thereon, and which in drilling shall have passed through any vein of nable coal, before abandoning, or ceasing to operate any such well, l before drawing the casing therefrom, to seal the same, etc."

During the year, or since the enactment of this statute, the Department has been industriously engaged in trying to carry it into effect, and s gratifying to state that in a fair measure at least the efforts set forth this direction have been productive of satisfactory results. However, e all new laws, many obstacles have been encountered in putting it into active execution, and as in most things, the end sought can only be ched by degrees, and through the application of plenty of patience and e.

The last year was the most active in the history of the State in the and gas industry so far as it applies to the coal mining districts. In 9, the reports show that there were more wells drilled and that the duction was much greater than it was for any former year. Wells found in the second, third, fourth, fifth and sixth districts, the latter ling, and the third ranking second. Harrison county contains the atest number of wells, the Scio field alone having more than five hundred. Perry county comes second, and wells are also found in goodly rbers in the counties of Belmont, Monroe, Morgan and Noble. During the year Inspector Jas. P. Davis, sealed 75 wells in the fifth District, l D. B. Wilson 42 in the third District. Wells were also sealed by pectors Hull and Williams in the second, McGough in the fourth, and es T. Davis in the sixth. It is a well known fact that in many instances sponsible persons and companies have failed to comply with the proportions of the law in the matter of sealing wells, most of which belong what is commonly known as the "wild-cat" class. Failing to meet with ccess, they pull out their casing regardless of the law or consequences, d like the fabled "will-o' the wisp," flit from one territory to another, in d out of the State, putting down a hole here, there, anywhere. These rties should be guarded with an eagle eye, and their operations watched ith vigilance, otherwise these holes of which there is no record, will be e cause of much trouble, possibly of serious results in the years of the ture, as the coal fields of the several sections of the State are developed. scaping gas from a single hole might lead to the destruction of an entire ine, life, property and all.

Thus far no accidents or serious results have ensued from the drilling oil and gas wells in the coal fields of Ohio, and every precaution should taken to insure full protection for the future. This can easily be done a compliance with the law on the part of the owners and drillers, and

the department is glad to be able to say that it has the support and co-operation of practically all of the legitimate oil operators in this very important work.

REPORT OF THE FIRE CLAY INDUSTRY DURING 1899.

The Fire Clay industry in Ohio for 1899 shows a marked improvement as compared with the preceding year. In 1898 the tonnage of clay mined in the eighteen producing counties of the State amounted to 1,026,922 tons, and in 1899 it amounted to 1,173,697 in seventeen counties, Wayne dropping out. This is an increase of 146,775 tons, nearly fifteen per cent.

However, while there is an increase in the tonnage, the average time worked was nine days less, being one hundred and seventy-one in 1898, and one hundred and sixty-two in 1899. There was likewise a reduction in the number of miners, in 1898 the number being seven hundred and twenty-four, and in 1899, six hundred and seventy-eight were so employed. In 1898 the number of hands employed in the manufacture of clay into the marketable articles was two thousand six hundred and fifty-seven, while last year the number thus engaged was three thousand and forty-three, a gain of three hundred and eighty-six, or fifteen per cent.

Of the seventeen counties making returns, ten show gains and ten losses in the tonnage. The greatest gain, 61,533 tons was made by Tuscarawas county. Perry ranks second with 44,490 tons, Scioto, third with 43,984; Athens, fourth with 31,791; Summit, fifth with 25,799; and Stark sixth, with 18,620.

The greatest loss, 49,843 tons, was made by Muskingum, followed by Columbiana, with 29,986; Mahoning with 14,608; Jackson with 5,866 and Holmes with 2,125.

The clay purchased aggregated 18,200 tons, being 20,780 less tons than were bought during the year 1898. This is a good evidence that Ohio clay is fast coming to the front.

TABLE SHOWING THE FIRE CLAY OUTPUT OF THE STATE DURING THE YEAR 1899 AS COMPARED WITH 1898.

Counties.	1898						1899						Employees.				Output.	
	No. of Days Worked.	No. of Men Employed.	No. of Hands Engaged in the Manufacture.	No. Tons Mined.	No. Tons Purchased for Manufacturing Wares.	No. of Days Worked.	No. Men Employed.	No. Hands Engaged in Manufacture.	No. Tons Mined.	No. Tons Purchased for Manufacturing Wares.	Gain in Miners.	Loss in Miners.	Gain in Hands Employed in the Manufacture.	Loss in Hands Employed in the Manufacture.	Gain in Tons Mined.	Loss in Tons Mined.	Gain in Tons Mined.	Loss in Tons Mined.
Athens	926	36	136	74,570	.....	234	35	365	106,261	.....	12	1	169	.....	31,791	.....	.....	.....
Carroll	230	30	176	58,451	.....	275	42	200	72,673	.....	.....	.....	24	.....	14,192	.....	.....	.....
Columbia	163	108	216	125,301	300	196	62	257	98,319	506	46	46	41	.....	.....	29,986	.....	.....
Flooding	142	43	260	71,012	8,300	118	37	260	77,649	11,500	.....	.....	.....	.....	637	.....	.....	.....
Holmes	187	6	24	5,165	.....	165	1	.....	8,030	.....	.....	.....	.....	.....	.....	2,125	.....	.....
Jackson	225	27	69	14,136	2,270	136	13	30	8,270	.....	28	14	.....	.....	.....	5,866	.....	.....
Jefferson	253	71	326	167,489	.....	220	69	473	173,963	.....	.....	.....	147	.....	6,496	.....	.....	.....
Lawrence	183	16	.....	15,924	2,925	105	23	.....	18,494	.....	7	.....	.....	.....	2,570	.....	.....	.....
Mahoning	137	15	57	23,858	.....	124	11	21	9,250	.....	.....	.....	.....	.....	.....	.....	.....	.....
Muskingum	133	36	106	84,967	4,933	91	19	44	35,144	.....	.....	.....	.....	.....	.....	.....	.....	.....
Perry	131	43	108	32,308	12,998	98	32	75	76,798	.....	.....	.....	.....	.....	44,490	.....	.....	.....
Scioto	180	38	47	22,488	.....	158	65	91	66,472	4,000	27	.....	44	.....	43,984	.....	.....	.....
Stark	232	140	368	176,395	217	227	114	320	195,015	.....	.....	.....	162	.....	18,620	.....	.....	.....
Summit	167	37	363	98,000	4,725	213	38	290	123,799	1,800	1	.....	.....	.....	25,799	.....	.....	.....
Trumbull	100	3	.....	2,622	.....	300	9	.....	1,750	.....	.....	.....	.....	.....	.....	872	.....	.....
Tuscarawas	175	71	409	51,130	412	184	77	477	112,663	400	6	.....	68	.....	61,533	.....	.....	.....
Vinton	6	2	2	62	.....	162	1	.....	25	.....	.....	.....	.....	.....	.....	37	.....	.....
Average	171	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Totals	.....	724	2,657	1,026,922	38,990	.....	678	3,043	1,173,697	18,200	87	133	655	269	250,112	103,337	.....	.....
	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	46	.....	386	.....	146,775	.....	Net Gain.	.....

TABLE SHOWING THE FIRE CLAY PRODUCTION OF STATE FROM
JANUARY 1, 1884, TO DECEMBER 31, 1899.

Years.	Output Tons.	Gain.	Loss
1884	168,208		
1885	153,756		14
1886	266,709	112,953	
1887	366,476	99,767	
1888	471,794	105,313	
1889	574,129	102,335	
1890	833,159	259,030	
1891	1,087,560	254,401	
1892	1,253,110	165,550	
1893	1,032,348		220,762
1894	942,913		89,435
1895	844,832		97,081
1896	827,450		17,382
1897	822,727		4,723
1898	1,026,922	204,195	
1899	1,173,697	146,775	

PRODUCTION OF IRON ORE IN THE STATE DURING THE YEAR.

Ohio is dropping down the list in the iron ore industry, the product last year as shown by the reports received, being less than one-half that of the year before. But three counties reported, the number being the same as for the year 1898. They were Lawrence, Scioto and Vinton. The last named county is added to the list and Jackson dropped out. In 1898 the number of tons of iron ore mined was fifty-one thousand six hundred and fifty-nine, and in 1899 the total tonnage was twenty-five thousand three hundred and fifty-nine. In 1897 the product amounted to fifty-thousand two hundred and sixty-seven tons. Comparing 1899 with 1887 two hundred and eighty-nine thousand five hundred tons of hematite ore were mined.

Although a loss is shown in the product of Ohio iron ore mines, the year has been one of good activity among the blast furnaces. Indeed, the iron trade during 1899 has been the best in a number of years. The demand has been splendid, prices have been good, and prosperity has prevailed both among the employers and employees.

Development is steadily going on among the iron ore producing fields in other sections of the country, and a large percentage of the amount of raw material consumed by the furnaces of Ohio is shipped in from outside States. The quality of the ore found in other localities, taken in connection with the unlimited quantity, and the facilities for mining, make it more advantageous to import the raw material from home State.

TABLE SHOWING THE PRODUCTION OF IRON ORE BY COUNTIES DURING THE YEARS 1898 AND 1899, AND GAIN AND LOSS IN EACH COUNTY.

Counties.	Hematite 1898.	Hematite 1899.	Gain.	Loss.
Jackson	9,500	.....	.....	9,500
Lawrence	24,851	14,085	.....	10,766
Scioto	17,308	9,197	.....	8,111
Vinton .....	.....	2,077	2,077	.....
Totals	51,659	25,359	2,077	28,377

TABLE SHOWING THE IRON ORE PRODUCTION OF THE STATE FROM 1884 TO 1899 INCLUSIVE.

Years.	Blackband.			Hematite.			Totals.
	Output Tons.	Loss.	Gain.	Output Tons.	Loss.	Gain.	
1884 .....	.....	.....	.....	.....	.....	.....	276,286
1885	70,931	.....	.....	188,646	.....	.....	259,581
1886	83,947	.....	13,012	260,537	.....	71,891	344,484
1887	87,965	.....	4,018	289,500	.....	28,963	377,465
1888	82,054	5,911	.....	171,298	118,202	.....	253,352
1889	70,398	11,656	.....	182,011	.....	10,713	252,409
1890	41,848	28,550	.....	127,240	54,771	.....	169,088
1891	15,540	26,308	.....	52,444	74,796	.....	67,984
1892	8,680	6,860	.....	81,042	.....	28,598	89,722
1893	3,837	4,843	.....	64,423	16,619	.....	68,260
1894 .....	.....	3,837	.....	58,043	6,380	.....	58,043
1895 .....	.....	.....	.....	93,051	.....	35,008	93,051
1896 .....	.....	.....	.....	70,765	22,286	.....	70,765
1897 .....	.....	.....	.....	50,267	20,498	.....	50,267
1898 .....	.....	.....	.....	51,659	.....	1,392	51,659
1899 .....	.....	.....	.....	25,359	16,800	.....	25,359
Totals ..	465,204	87,965	17,030	1,766,285	330,352	176,565	2,507,775

THE YEAR'S PRODUCTION OF LIME STONE.

Two tables have been prepared on the limestone production of the State, and the same are published herewith, the one following the other.

The first table shows the time worked in the several counties, the number of men employed, the number of tons of the raw material burned for lime, etc.

Limestone is produced in forty of the counties of Ohio, being four less than half the number of counties of the State, although in some of these the quantity is very limited.

The average time worked was one hundred and forty-one days as compared with one hundred and thirty-two in 1898, and one hundred and thirty-one in 1897.

Three thousand one hundred and sixty-five employes were engaged in the industry. In 1898 the number was three thousand one hundred and forty-nine; in 1897, three thousand three hundred and ninety-eight; in 1896, three thousand one hundred and eighty-six; in 1895, three thousand and eight hundred and twenty-nine. Gains were made in twenty counties, and losses occurred in an equal number. In 1898 there were gains in nine and losses in twenty-eight. Franklin county shows the greatest gain, ninety-two, and Adams county the greatest loss, sixty-eight.

Six hundred and twenty-six thousand, two hundred and seventy-four tons of stone burned for lime shows the production for 1899, as compared with six hundred and twenty-six thousand, nine hundred and twenty-one tons for the year 1898. Sixteen counties record gains, and an equal number losses in this regard. The greatest gain is given by Erie county the amount being fifty thousand and thirty-two, and the heaviest loss Delaware county, sixty thousand seven hundred and forty-eight.

The number of tons of stone used for fluxing amounted to seven hundred and ninety-one thousand seven hundred and one in 1899, and five hundred and seventy-one thousand and twenty-nine in 1898, an increase of two hundred and twenty thousand six hundred and seventy-two tons.

In 1899, four hundred and five thousand one hundred and twelve cubic feet of dimensions, stone were quarried, a decrease of two hundred and twenty-six thousand two hundred and twenty-four feet. Gains occurred in thirteen counties, and losses in nine, but in most instances the gains were small, and in many of them the losses were heavy.

Thirty-four counties sent in returns on building stone, being the same as that returned for last year, and two hundred and sixty-four thousand six hundred and forty cubic yards were produced, being one hundred and three thousand seven hundred and three cubic yards less than in 1898. Gains were reported in thirteen counties, and losses in twenty-two.

These tables also show the product for piers and protection purposes, square feet of flagging, square feet of paving, lineal feet of curbing, and cubic yards of ballast and macadam.

Inquiry blanks, as customary, were sent out to the various lime and stone firms of the State, with a view of ascertaining the general condition of the industry. Two hundred and ninety-four firms responded, while eighty-seven failed to report.

One hundred and thirty-two firms reported an increase in the business, and thirty-six a decrease, while thirty-nine reported no material change.

Counties.	Average Number of Days Worked.	Number of Men Employed.	Number of Tons of 2,000 Pounds Each Burned for Lime.	Number of Tons of 2,000 Pounds Each Burned for Fluxing	Cubic Feet of Dimension Stone.	Cubic Yards of Ordinary Building Stone.	Cubic Yards for Piers and Protection Purposes.	Square Feet of Flagging.	Square Feet of Pavement.	Lineal Feet of Curbing.	Cubic Yards of Ballast and Macadam.
Adams	106	34	248	6,065		90		28,632	22,190	3,839	15,000
Allen	133	131	300			12,839	605				103,838
Butler	80	14				4,082	151				20
Clark	195	137	29,359	4,958	8,937	19,630	2,624	1,240	276	1,096	18,115
Clermont	136	22			5,000	1,229	275	375	400	200	262
Crawford	78	8	369			451					
Clinton	69	28	140		13,125	1,106	61	1,150		40	5,755
Delaware	135	62	8,890		19,680	7,673	2,310	325		250	13,270
Darke	260	4	2,906								
Erie	156	258	124,813	137,217		21,249	38,792	9,290	7,680		4,233
Franklin	181	215	337	138,370	80,738	13,353	200	2,900	1,500	500	111,432
Greene	138	65	24,000		4,000	6,550	571	900	400	4,600	14,600
Hamilton	155	124			1,000	15,216	858				36,915
Hancock	144	76	2,500			3,200	183				47,264
Hardin	158	59	17,640			227	100				18,335
Highland	146	113	3,307		12,250	14,235	1,699		6,881	8,250	37,466
Holmes	15	2		414		300					90
Jackson											
Jefferson	20	3									149
Lawrence	78	37		24,930							
Logan	137	21			2,500	5,168		2,000	500		5,500
Lucas	160	28			13,568	3,991	1,000				25,753
Marion	241	295	82,732	42,813	17,186	22,773				8,500	120,171
Miami	194	124	4,870	6,500	38,250	32,781	8,370	12,931	16,600	22,355	9,100

Montgomery	131	77	7,863	.....	139,600	21,812	1,089	394	6,519	3,819	10,509
Muskingum	51	10	48	.....	.....	792	.....	.....	.....	.....	50
Mercer	150	6	700	.....	.....	100	.....	.....	.....	.....	1,475
Ottawa	199	525	199,412	411,718	.....	2,146	23,185	.....	.....	.....	3,300
Paulding	110	23	2,260	.....	.....	1,430	19	.....	.....	.....	.....
Pickaway	150	2	.....	.....	1,300	50	.....	.....	.....	765	.....
Preble	130	79	2,558	.....	30,688	16,724	4,800	10,350	2,250	2,877	2,507
Putnam	106	96	225	.....	124	6,617	207	15,000	16,600	.....	26,753
Sandusky	241	35	12,663	.....	.....	7,367	.....	.....	.....	.....	7,290
Seneca	146	123	38,640	.....	.....	14,061	.....	10,110	.....	.....	104,241
Shelby	200	7	1,750	.....	8,366	.....	.....	.....	.....	.....	.....
Stark	200	19	6,786	.....	.....	.....	.....	.....	.....	.....	.....
Scioto	134	15	.....	18,716	8,800	1,679	.....	4,536	.....	.....	.....
Van Wert	192	79	868	.....	.....	1,632	.....	.....	.....	.....	59,032
Wood	158	201	49,432	.....	.....	3,377	.....	.....	.....	.....	59,324
Wyandot	100	8	630	.....	.....	800	.....	.....	.....	.....	2,600
Totals	142	3,165	626,276	791,701	405,112	264,640	87,099	100,133	81,796	57,091	864,349

TABLE SHOWING THE COMPARATIVE GAIN AND LOSS IN THE
OF 1899 BEING COMPARED

Counties.	Number of Days Worked.		Number of Men Employed.		Tons of 2000 Pounds Each Burned for Lime.		Tons of 2000 Pounds Each Burned for Fluxing.		Cubic Feet of Dimension Stone.	
	Gain.	Loss.	Gain.	Loss.	Gain.	Loss.	Gain.	Loss.	Gain.	Loss.
Adams	36			68		861	6,065			
Allen	8			27		2,402				
Butler		37		1						
Clark	9		18		1,381			2,948	4,707	
Crawford	92								5,000	
Delaware		42	1		167					
Franklin		15		5		3,360			12,725	
Greene		27	5			60,748				30,420
Hamilton	105			4	2,218			315		
Harrison		12	8		50,032		8,928			154,496
Jefferson	24		92		232		76,314		28,438	
Lincoln		8		14	18,000				1,500	
Mason	2			33						
Meigs	31			24		8,750				
Mitchell	54			5	17,197					
Monroe	51		48			1,710			1,355	
Muskingum		19								
Nichols				45						
Okmulgee							414			
Ottawa	20		3							
Paulding		86		51			3,565			14,400
Pickaway	33		4			49			2,250	
Pike	22		16						13,268	
Preble			60		2,477		14,232		10,086	
Putnam	17		2			3,993	700			25,978
Sandusky	5		25			3,077			133,325	
Seneca		30	2			672				
Shelby		58	1		615					
Stark	19		12		1,400		160,415			192,957
Scioto		5		3		13			100	
Union		30		3		210				
Van Wert	46		4		2,283				15,888	
Wood	34		17		125				24	
Wyandot	1		7			37				
Totals	726	515	386	370	119,341	117,996	267,058	46,386	228,666	428,766
Aggregate Gain and Loss	211		16		1,345		220,672			200,060

[illegible]

COMPARATIVE PRODUCTION OF LIME.

Years.	Average Number of Weeks Worked.	Number of Men Employed.	Number Tons of 2,000 Pounds Burned for Lime.	Number Tons of 2,000 Pounds Burned for Fluxing.	Cubic Feet of Dimension Stone.	Cubic Yards of Ordinary Building Stone.	Cubic Yards for Piers and Protection Purposes.	Square Feet of Flagging.	Square Feet of Flagging.	Cubic Yards.	Cubic Feet.
1886	27	2,383	517,270	328,080	566,697	295,231	63,650	187,900	154,636	139,174	186,810
1887	33	2,767	619,027	478,674	950,393	385,247	78,932	350,951	289,195	139,174	416,018
1888	30	3,025	602,074	666,481	1,795,038	.....	78,841	580,901	313,855	205,227	445,770
1889	30	2,631	849,412	235,208	898,886	364,685	69,876	413,400	586,361	209,339	354,544
1890	31	2,445	689,827	308,521	333,677	270,367	81,114	673,850	507,313	165,434	432,650
1891	26	3,286	744,946	284,478	634,901	361,637	65,295	417,855	4,948,939	200,756	622,194
1892	24	3,353	631,049	217,981	1,057,157	323,600	48,102	171,567	2,883,208	101,820	764,784
1893	27	2,929	396,690	108,376	748,712	290,611	57,374	226,654	393,883	209,327	757,142
1894	25	2,484	349,631	240,173	1,393,792	181,722	22,839	206,736	312,808	144,042	435,764
1895	23	3,829	1,175,988	429,632	500,648	253,900	48,675	573,634	640,836	152,873	650,217
1896	24	3,186	397,162	623,544	260,289	215,900	29,114	137,579	163,373	71,536	553,329
1897	131	3,398	481,871	320,437	371,741	248,392	97,548	145,331	113,025	55,168	629,044
1898	132	3,149	624,921	571,029	605,172	368,343	47,792	71,606	43,256	52,940	729,896
1899	142	3,165	626,274	791,701	405,112	264,640	87,099	100,133	81,796	57,091	864,349
Gain	10	16	1,345	220,672	.....	.....	39,337	28,527	38,540	4,151	134,453
Loss	.....	.....	.....	.....	200,060	103,763	.....	.....	.....	.....	.....

VARIOUS CLASSIFICATIONS OF LIMESTONE, THE PRODUCTION
WITH THAT OF 1898.

Cubic Yards of Ordinary Build- ing Stone.		Cubic Yards for Piers and Protec- tion Purposes.		Square Feet of Flagging.		Square Feet of Paving.		Lineal Feet of Curbing.		Cubic Yards of Ballast and Macadam.	
Gain.	Loss.	Gain.	Loss.	Gain.	Loss.	Gain.	Loss.	Gain.	Loss.	Gain.	Loss.
.....	248	.....	.....	1,100	.....	2,700	.....	.....	.....	13,595	.....
.....	4,440	475	.....	15,132	.....	12,190	.....	2,139	.....	44,297	.....
633	.....	.....	119	.....	.....	.....	.....	.....	.....	.....	.....
7,711	.....	.....	196	1,042	.....	12,738	743	.....	.....	9,689	.....
.....	275	75	.....	.....	125	.....	600	.....	3,440	.....	62
.....	849	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	297	.....	556	598	.....	.....	.....	40	.....	.....	19
8,851	.....	2,310	.....	325	.....	.....	.....	250	.....	48,31	.....
.....	200	.....	.....	.....	.....	.....	.....	1,077	.....	.....	.....
.....	35,484	38,792	.....	5,890	.....	7,860	.....	.....	.....	5,92	.....
.....	8,738	.....	1,349	600	.....	.....	.....	100	.....	13,809	.....
776	.....	.....	1,679	600	.....	400	.....	4,600	.....	40	.....
.....	5,585	658	.....	.....	.....	.....	1,860	.....	.....	13,266	.....
.....	1,588	183	.....	.....	.....	.....	.....	.....	.....	9,282	.....
.....	2,210	100	.....	.....	.....	.....	.....	1,300	.....	11,76	.....
7,381	.....	.....	2,317	.....	6,784	199	.....	6,791	.....	8,830	.....
.....	100	.....	.....	.....	.....	.....	.....	.....	.....	11	.....
.....	.....	.....	3,000	.....	.....	.....	.....	.....	.....	4,000	.....
.....
.....	.....	.....	3,000	.....	.....	.....	.....	.....	.....	149	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	700	.....
60	.....	.....	.....	2,000	.....	500	.....	600	.....	4,500	.....
2,275	.....	.....	540	.....	600	.....	.....	.....	.....	19,859	.....
7,723	.....	.....	2,400	.....	230	.....	.....	1,500	.....	10,860	.....
.....	28,709	.....	32	2,297	.....	15,850	.....	2,822	.....	8,584	.....
6,345	.....	.....	3,568	.....	846	6,519	.....	6,181	.....	9,909	.....
.....	40	.....	.....	.....	.....	.....	.....	.....	.....	1,040	.....
.....	100	.....	.....	.....	.....	.....	.....	.....	.....	50	.....
.....	42,270	17,943	.....	.....	.....	.....	.....	.....	.....	2,611	.....
.....	1,170	.....	11	.....	.....	.....	.....	.....	.....	1,500	.....
.....	153	.....	.....	.....	.....	.....	.....	713	.....	.....	.....
.....	10,325	1,610	.....	.....	2,472	.....	3,500	77	.....	.....	1,243
.....	3,333	207	.....	7,500	.....	16,600	.....	300	.....	.....	502
4,209	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,301	.....
2,507	.....	.....	.....	10,110	.....	.....	.....	800	.....	47,800	.....
.....
1,679	.....	.....	1,858	.....	4,310	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	100	.....	.....	.....	.....	.....	.....
.....	283	.....	495	.....	.....	.....	.....	.....	.....	16,089	.....
.....	3,234	.....	1,896	.....	1,000	.....	.....	500	.....	40,564	.....
778	.....	.....	.....	.....	.....	.....	.....	.....	.....	619	.....
45,928	149,631	62,353	23,016	46,094	17,567	59,938	21,398	19,062	14,911	243,229	108,776
.....	103,703	39,337	.....	28,527	.....	38,540	.....	4,151	.....	134,453	.....

TABLE SHOWING THE COMPARATIVE PRODUCTION OF LIMESTONE IN OHIO FROM 1886 TO 1899, INCLUSIVE.

Years.	Average Number of Weeks Worked.	Number of Men Employed.	Number Tons of 2,000 Pounds Burned for Lime.	Number Tons of 2,000 Pounds Burned for Fluxing.	Cubic Feet of Dimension Stone.	Cubic Yards of Ordinary Building Stone.	Cubic Yards for Piers and Protection Purposes.	Square Feet of Flagging.	Square Feet of Paving.	Lineal Feet of Curbing.	Cubic Yards of Ballast and Macadam.
1886	27	2,383	517,270	328,080	566,697	295,231	63,050	187,900	154,636	60,650	186,810
1887	33	2,767	619,027	478,674	950,393	385,247	78,932	350,954	289,195	139,174	416,018
1888	30	3,025	602,074	666,481	1,795,638	.....	78,381	580,901	313,855	205,227	445,770
1889	30	2,631	849,442	235,298	898,886	364,685	69,876	413,400	586,361	209,339	354,544
1890	31	2,445	689,827	308,521	333,077	270,367	81,414	673,850	507,313	165,434	432,650
1891	26	3,286	744,946	284,478	634,901	361,637	65,205	417,855	4,948,939	200,756	622,194
1892	24	3,353	631,049	217,981	1,057,157	323,600	48,102	171,567	2,883,208	101,820	764,784
1893	27	2,929	396,690	108,376	748,712	290,614	57,374	226,654	393,883	209,327	757,142
1894	25	2,484	349,631	240,173	1,393,792	181,722	22,839	206,736	312,868	144,042	435,764
1895	23	3,829	1,175,988	429,632	500,648	253,900	48,675	573,634	640,836	152,873	650,217
1896	24	3,186	397,162	623,544	260,289	215,900	29,114	137,579	163,373	71,236	553,329
1897	131	3,398	481,871	320,437	371,741	248,392	97,548	145,331	113,025	55,168	629,044
1898	132	3,149	624,921	571,029	605,172	368,343	47,762	71,606	43,256	52,940	729,886
1899	142	3,165	626,274	791,701	405,112	264,640	87,099	100,133	81,796	57,091	864,349
Gain	10	16	1,345	220,672	.....	.....	39,337	28,527	38,540	4,151	131,453
Loss	.....	.....	.....	.....	200,060	103,703	.....	.....	.....	.....	.....

MINE CASUALTIES DURING THE YEAR.

Fatal accidents to the number of fifty-nine occurred in the coal mines of Ohio during 1899, as compared with fifty-two in 1898. The number of serious accidents was two hundred and four, being an increase of forty-nine over the preceding year, while the minor accidents aggregated one hundred and twenty-seven, or seven less than in 1898. The total number of accidents was three hundred and ninety, while in 1898 the number was three hundred and forty-one. The increase may be attributed to the activity of the trade, rather than to carelessness.

In fourteen of the thirty counties, fatal accidents occurred, Jackson leading with nine. Guernsey and Stark each report eight; Athens, Belmont and Jefferson each report six, and Coshocton, Hocking and Tuscarawas three each.

Stark county shows the most serious accidents, thirty-two in all, other counties following in the order named: Guernsey, twenty-eight; Athens, eighteen; Belmont, seventeen; Jackson and Perry, sixteen each; Columbiana, eleven; Jefferson and Tuscarawas, each fifteen; and Coshocton, Lawrence and Noble five each.

The second and third tables show the comparisons of accidents for the years 1898 and 1899, in the several counties of the State, and the gain or loss in each as the case might be.

Athens shows the greatest gains in fatal accidents, with four, while Stark leads in the loss with two. In accidents of a serious nature Jefferson leads in gain with seven, Medina shows six, and Tuscarawas four. Guernsey county shows the greatest loss, having eight.

SHOWING THE NUMBER OF FATAL, SERIOUS AND MINOR
IDENTS AND THE NUMBER OF EACH CLASSIFICATION THAT
OCCURRED IN EACH COUNTY.

Counties.	Fatal.	Serious.	Minor.	Total.
.....	6	18	16	40
.....	6	17	17	40
.....			2	2
ana	2	11	2	15
on	3	5	5	13
.....			7	7
y	8	28		36
l		1		1
.....	3	9	5	17
.....	9	16	17	42
l	6	15	12	33
e	2	5	6	13
ig	1	1	1	3
.....		4	2	6
.....		2		2
.....	1			1
um		5	2	7
.....		16	6	22
.....	1	3	2	6
.....	8	32	16	56
.....		1		1
ll	3	15	6	24
was			2	2
pton			1	1
als	59	204	127	390

TABLE SHOWING A COMPARISON OF THE CASUALTIES OF 1899 WITH
THOSE OF 1898.

Counties.	1898.				1899.				Total.	
	Fatal.	Serious.	Minor.	Total.	Fatal.	Serious.	Minor.	Total.	Gain.	Loss.
Athens	8	20	12	40	6	18	16	40		
Belmont	3	9	12	24	6	17	17	40	16	
Carroll	1	2	3	6			2	2		4
Columbiana	1	5	8	14	2	11	2	15	1	
Coshocton	1	3		4	3	5	5	13	9	
Gallia	1			1			7	7	6	
Guernsey	6	12	11	29	8	28		36	7	
Harrison						1		1	1	
Holmes										
Hocking	1	9	8	18	3	9	5	17		1
Jackson	6	12	11	29	9	16	17	42	13	
Jefferson	1	13	17	31	6	15	12	33	2	
Lawrence		2	2	4	2	5	6	13	9	
Mahoning	1			1						1
Medina		7	2	9	1	1	1	3		6
Meigs	1	4		5		4	2	6	1	
Morgan		2	1	3		2		2		1
Monroe										
Muskingum	2		1	3	1			1		2
Noble	1	2	2	5		5	2	7	2	
Perry	6	15	20	41		16	6	22		19
Portage		4	6	10	1	3	2	6		4
Scioto	1			1						1
Stark	4	19	9	32	8	32	16	56	24	
Summit	1		1	2		1		1		1
Trumbull	2	1		3						3
Tuscarawas	4	12	6	22	3	15	6	24	2	
Vinton		1	1	2			2	2		
Washington										
Wayne		1	1	2			1	1		1
Totals	52	155	134	341	59	204	127	390	93	44

TABLE SHOWING THE COMPARISON OF THE ACCIDENTS OCCURRING
IN 1898 AND 1899.

Counties.	Fatal.		Serious.		Minor.	
	Gain.	Loss.	Gain.	Loss.	Gain.	Loss.
Athens		2		2	4	.....
Belmont	3		8		5	.....
Carroll		1		2		1
Columbiana	1		6			6
Coshocton	2		2		5	.....
Gallia		1			7	.....
Guernsey	2		16			11
Harrison			1			.....
Holmes .....						.....
Hocking	2					8
Jackson	3		4		6	.....
Jefferson	5		2			5
Lawrence	2		3		4	.....
Mahoning		1				.....
Medina	1			6		1
Meigs		1			2	.....
Morgan						1
Monroe .....						.....
Muskingum		1				1
Noble		1	3			.....
Perry		6	1			14
Portage	1			1		4
Scioto		1				.....
Stark	4		13		7	.....
Summit		1	1			1
Trumbull		2		1	
Tuscarawas		1	3		
Vinton				1	1
Washington
Wayne				1	
Totals	26	19	63	14	41	48

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BLE SHOWING A COMPARISON OF THE CASUALTIES
THOSE OF 1898.

Counties.	1898.				1899.	
	Fatal.	Serious.	Minor.	Total.	Fatal.	Serious.
Athens	8	20	12	40	6	
Belmont	3	9	12	24	6	
Carroll	1	5	8	14	2	
Columbiana	1	3		4		
Coshocton	1			1		
Gallia	6	12	11	29		
Guernsey						
Harrison						
Holmes	1	9	8	18		
Hocking	6	12	11	29		
Jackson	1	13	17	31		
Jefferson		2	2			
Lawrence	1					
Mahoning		7	2			
Medina	1	4	1			
Meigs		2				
Morgan						
Monroe	2					
Muskingum	1	2				
Noble	6	15				
Perry		4				
Portage		1				
Scioto		4	19			
Stark		1				
Summit		2				
Trumbull		4				
Tuscarawas						
Vinton						
Washington						
Wayne						
Totals	57					

ing down a shaft, one from miner
through a rib, one from miner
five miscellaneous.

eral public, the occupation of the coal miner is considered
hazardous, but by comparison it is found that the miner
so much in danger as is that of the railroader. The
Department show that in 1899 the number of persons em-
around the mines of Ohio numbered twenty-eight thou-
y-eight. The fatal accidents aggregated fifty-nine, being
every four hundred and seventy-four employees. The
of accidents, fatal, serious and minor was three hundred and
average of one for every seventy-two men engaged in the
f coal. An examination of the last annual report of the
of Railroads and Telegraphs of Ohio shows the total

MINE ACCIDENTS AND THEIR CAUSES.

Three hundred and ninety accidents are recorded as having occurred in the mines of Ohio during the year ending November 15th, 1899. Fifty-nine of these were fatal, two hundred and four were serious and one hundred and twenty-seven were of a minor nature.

As usual a greater number of casualties were caused by falling of roof and coal than from any other source. The history of the mining industry the world over tells us that in this manner more miners are killed and injured than in any other way.

Thirty-one deaths, the same number as in 1898 came from falling of roof, and eight from falling coal, the latter being one more than for the preceding year. There were eighty-one serious accidents produced by falls of roof, and thirty-two by falls of coal, being eight and nine more respectively, than in 1898. The fatal accidents constitute ten per cent. of the entire number sustained, and those of a serious nature, twenty nine per cent.

Five men were killed by mine cars, four by being caught under cages, two by premature explosion, one by falling down a shaft, and one by a shot blowing through a rib, two by railroad cars, one by coming in contact with a live wire, and three came to their death from heart failure, probably due to bad ventilation.

In the list of serious accidents, forty-eight were caused by mining cars, thirteen by premature explosions, six from carburetted hydrogen gas explosions, one by being caught under a cage, three were injured by mules and horses, three by falling timbers, three by railroad cars, one by falling from a tippie, six by mining machines, and seven in miscellaneous ways.

Forty-seven minor accidents came from mine cars, five from premature explosion, four from carburetted hydrogen gas explosions, three from mules and horses, one from a mine cage, one from falling timber, two from falling down a shaft, one from falling from a tippie; two from shots blowing through a rib, one from miner's pick, two from mining machines, and five miscellaneously.

By the general public, the occupation of the coal miner is considered to be extremely hazardous, but by comparison it is found that the miner's life is not nearly so much in danger as is that of the railroader. The returns to this Department show that in 1899 the number of persons employed in and around the mines of Ohio numbered twenty-eight thousand and twenty-eight. The fatal accidents aggregated fifty-nine, being one death for every four hundred and seventy-four employees. The total number of accidents, fatal, serious and minor was three hundred and ninety, or an average of one for every seventy-two men engaged in the production of coal. An examination of the last annual report of the Commissioners of Railroads and Telegraphs of Ohio shows the total

number of railroad employees to have been fifty-four thousand five hundred and forty-five. One hundred and fifteen deaths occurred from accidents during the year, being one death for every four hundred and seventy employees. The aggregate number of accidents from the different sources which were reported was five thousand five hundred and seventeen, or one accident for every nine and seven-eighths men employed in the railroad service. From the above comparisons it will readily be seen that the life of the railroad man is subject to danger to a greater degree than is that of the miner of coal.

TABLE SHOWING THE NUMBER AND CHARACTER OF THE ACCIDENTS OCCURRING DURING THE YEAR AND TO WHAT SOURCES THEY WERE ATTRIBUTABLE.

Causes.	Fatal.	Serious.	Minor.	Totals.	Percentage.
Falls of roof.....	31	81	41	153	39.2
Falls of coal.....	8	32	12	52	13.3
Injured by mine cars.....	5	48	47	100	25.6
Premature explosion.....	2	13	5	20	5.0
Explosion of gas (CH ₄).....		6	4	10	2.5
Caught under cage.....	4	1	1	6	1.5
Injured by mules and horses.....		3	3	6	1.5
Falls of timber.....		3	1	4	1.0
Falls of down shaft.....	1		2	3	.7
Injured by R. R. cars.....	2	3		5	1.2
Falls from tippie.....		1	1	2	.5
Shot blowing through rib.....	1		2	3	.7
Injured by miner's pick.....			1	1	.2
Heart failure.....	3			3	.7
Injured by mining machines.....		6	2	8	2.0
Contact with electric wires.....	1			1	.2
Miscellaneous.....	1	7	5	13	3.3
Totals.....	59	204	127	390	100

TABLE SHOWING THE NUMBER AND CHARACTER OF ACCIDENTS
WHICH RESULTED FROM THE PRINCIPAL SOURCES AS REPORTED
FROM EACH COUNTY.

Counties.	Falls of Roof.			Falls of Coal.			Injured by Mine Cars.			Premature Explosion.			Explosion of Fire Damp.			Miscellaneous.			Totals.
	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	
Athens	3	5	6	1	2	...	1	6	8	...	2	2	...	...	...	1	3	...	40
Belmont	3	11	8	3	...	...	...	1	2	...	...	...	...	...	...	...	5	...	40
Carroll .....	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	2
Columbiana .....	...	1	1	...	5	...	...	...	...	1	1	...	...	...	...	1	4	1	15
Coshocton	3	2	2	...	1	...	...	...	1	...	1	1	...	...	...	...	1	1	13
Gallia .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Guernsey	3	6	1	...	2	1	3	12	3	...	2	...	...	1	...	2	5	2	43
Harrison .....	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Holmes .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hocking	1	2	1	1	5	1	...	1	2	...	1	...	...	...	...	1	...	1	17
Jackson	5	6	5	...	...	1	1	7	5	...	1	1	...	1	1	3	1	4	42
Jefferson	4	8	5	1	...	1	...	5	4	...	1	1	...	...	...	1	1	1	33
Lawrence	2	2	1	...	...	...	...	...	5	...	3	...	...	...	...	...	...	...	13
Mahoning .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Medina .....	...	1	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	3
Meigs .....	...	2	...	...	1	...	...	1	2	...	...	...	...	...	...	...	...	...	6
Morgan .....	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
Monroe .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Muskingum .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1
Noble .....	...	1	...	...	...	...	...	1	1	...	...	...	...	3	1	...	...	...	7
Perry .....	...	8	2	...	3	1	...	4	1	...	...	...	...	...	...	...	1	2	22
Portage	1	3	...	...	...	1	...	...	1	...	...	...	...	...	...	...	...	...	6
Scioto .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Stark	3	17	6	2	9	5	...	4	2	...	...	1	...	1	2	3	1	...	56
Summit .....	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1
Trumbull .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tuscarawas	3	3	...	...	4	1	...	5	2	...	1	1	...	...	...	...	2	2	24
Vinton .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2
Washington .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Wayne .....	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Totals	31	81	41	8	32	12	5	48	47	2	13	7	...	6	4	13	24	16	390

Years.	Falls of Roof	Falls of Coal.	Injured by M Cars.	Premature Explosion.	Explosion Gas.	Falls Do Shafts.	Crushed Un Cage.	Falls, Pro Tipples.	Kicked by M or Horse.	Injured by R. Cars.	Falls of Timb	No Cause Giv	Shot Blow Through R	Injured Miner's Pic	Heart Failure	Electric Wire	Injured by M ing Machin	Miscellaneous	Totals.
1888	100	47	46	13	4	.....	8	3	2	.....	.....	5	1	.....	.....	.....	.....	9	238
1889	92	50	48	12	4	1	2	.....	4	2	.....	3	.....	1	.....	.....	.....	11	280
1890	109	44	59	13	4	2	1	.....	2	.....	.....	3	.....	1	.....	.....	.....	7	245
1891	112	26	47	24	6	.....	3	.....	5	.....	4	.....	.....	.....	1	.....	.....	14	242
1892	126	41	73	21	3	2	1	2	4	3	2	.....	1	1	.....	.....	.....	11	291
1893	118	55	88	17	2	5	1	4	6	5	5	.....	3	3	1	.....	.....	14	327
1894	98	39	60	17	5	5	4	1	1	2	3	.....	2	1	4	.....	.....	15	257
1895	108	46	67	23	1	1	3	.....	4	2	.....	.....	3	2	.....	.....	3	8	271
1896	133	34	74	20	7	1	2	1	9	2	.....	.....	3	1	2	1	3	10	303
1897	98	48	70	16	5	2	1	1	6	2	1	.....	4	2	1	1	7	12	277
1898	156	47	69	8	13	1	3	2	3	3	3	.....	4	1	2	1	11	14	341
1899	153	52	100	20	10	3	6	2	6	5	4	.....	3	1	3	1	8	13	390
Totals	1,403	539	801	204	64	23	35	16	52	26	22	11	24	14	14	4	82	183	3,412

TABLE SHOWING THE NUMBER OF TONS OF COAL MINED TO THE LIFE LOST, TO THE SERIOUS INJURY AND TO THE TOTAL NUMBER OF FATAL AND SERIOUS ACCIDENTS FOR EACH YEAR SINCE THE CREATION OF THE DEPARTMENT.

Years.	Number of Fatal Accidents.	Number of Serious Accidents.	Number Tons Mined to the Person Killed or Seriously Injured and Number of Tons to the Total.			Name of Chief Mine Inspector.
			Fatal.	Serious.	Total.	
1874 ...	20	80	108,919	4,844	31,419	Andrew Roy.
1875 ...	23	40	202,667	121,606	77,210	"
1876 ...	13	70	269,999	50,000	42,168	"
1877 ...	30	39	175,000	134,615	76,087	"
1878 ...	20	.....	.....	.....	.....	Jas. D. Poston.
1879 ...	.....	.....	.....	.....	.....	David Owen.
1880 ...	22	61	292,624	114,754	84,217	Andrew Roy.
1881 ...	29	.....	283,621	.....	.....	"
1882 ...	25	.....	378,000	.....	.....	"
1883 ...	26	.....	316,516	.....	.....	"
1884 ...	26	40	226,636	143,433	86,932	Thos. B. Bancroft.
1885 ...	51	32	244,258	153,258	94,170	"
1886 ...	43	65	194,308	194,772	78,104	"
1887 ...	36	75	286,158	137,356	92,808	"
1888 ...	29	79	376,239	138,113	100,934	Robt. M. Haseltine.
1889 ...	33	52	330,527	209,757	128,322	"
1890 ...	42	52	280,687	226,708	125,413	"
1891 ...	44	66	296,595	197,730	118,636	"
1892 ...	42	93	347,929	157,129	108,170	"
1893 ...	32	123	463,378	120,553	95,665	"
1894 ...	45	116	364,672	102,674	73,976	"
1895 ...	52	152	263,151	90,025	67,078	"
1896 ...	41	159	314,942	81,211	64,563	"
1897 ...	40	142	311,221	87,668	68,400	"
1898 ...	52	155	270,463	90,736	104,956	"
1899 ...	59	204	269,643	77,985	347,628	"

TABLE SHOWING THE NUMBER OF TONS OF COAL MINED TO THE
SINCE 1886 AS COM

	1886.		Number of Miners for Each Life Lost.	1887.		Number of Miners for Each Life Lost.	1888.		Number of Miners for Each Life Lost.
	Number of Tons Mined for Each Accident.			Number of Tons Mined for Each Accident.			Number of Tons Mined for Each Accident.		
	Fatal.	Non-fatal.		Fatal.	Non-fatal.		Fatal.	Non-fatal.	
Colorado	165,287	.....	.....	149,311	34,456	.....	75,361	27,319	.....
Great Britain ..	214,909	66,126	545	162,934	.....	551	191,369	.....	602
Illinois	428,571	333,333	497	303,002	69,017	654	260,512	80,046	535
Indiana	183,494	350,306	.....	.....	.....	.....	196,311	157,049	.....
Iowa .....	.....	.....	.....	227,323	56,830	.....	177,401	49,832	458
Kansas .....	.....	.....	.....	224,297	52,336	799	.....	.....	.....
Kentucky	235,714	61,111	.....	256,172	163,019	929	154,826	45,874	631
Maryland .....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Missouri	50,654	21,709	206	.....	.....	.....	150,383	105,674	210
Montana .....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Nova Scotia .....	.....	.....	.....	238,691	167,083	.....	888,064	59,204	2325
Ohio	194,309	129,772	474	286,158	137,356	618	376,239	138,113	765
Pennsylvania ..	175,311	53,672	440	169,327	151,900	512	166,532	56,849	361
Tennessee .....	.....	.....	.....	.....	.....	.....	.....	.....	.....
West Virginia ..	.....	.....	.....	.....	.....	.....	191,984	63,152	346

TOTAL NUMBER OF ACCIDENTS IN OTHER STATES AND COUNTRIES
PARSED WITH OHIO.

	1889.		Number of Miners for Each Life Lost.	1890.		Number of Miners for Each Life Lost.	1891.		Number of Miners for Each Life Lost.
	Number of Tons Mined for Each Accident.			Number of Tons Mined for Each Accident.			Number of Tons Mined for Each Accident.		
	Fatal.	Non-fatal.		Fatal.	Non-fatal.		Fatal.	Non-fatal.	
Colorado				104,375	31,385	239	121,126	27,230	227
Great Britain ..	178,227		530						
Illinois	333,745	69,738	716	286,316	51,955	539	261,012	42,672	546
Indiana				1239,429	578,400	936			
Iowa	98,600	52,772	321	331,709	132,683	824	206,776	88,618	507
Kansas				314,506	125,802	955	250,339	78,678	813
Kentucky	156,136	56,792	378	233,089	101,343	406	184,383		542
Maryland							380,084	285,063	437
Missouri	222,347	111,173	514	243,739	87,049	765	147,223	82,813	413
Montana			1818						
Nova Scotia ...	219,539	97,571	646	220,444	94,479	591	681,594	638,996	1915
Ohio	330,527	209,757	615	280,687	226,708	456	296,595	65,910	545
Pennsylvania ..	150,202	56,789	144	154,257	58,235	181	131,980	64,814	287
Tennessee							109,295	43,718	253
West Virginia ..		206,358		206,358	54,450	327	202,262	104,020	362

INSPECTOR OF MINES.

85

	1892.			1893.			1894.			No. of miners for each life lost.	No. of miners for each life lost.		
	No. of Tons Mined for Each Accident.			No. of Tons Mined for Each Accident.			No. of Tons Mined for Each Accident.				No. of Tons Mined for Each Accident.		
	Fatal.	Non-Fatal.	No. of miners for each life lost.	Fatal.	Non-Fatal.	No. of miners for each life lost.	Fatal.	Non-Fatal.	No. of miners for each life lost.		Fatal.	Non-Fatal.	No. of miners for each life lost.
Alabama .....	.....	.....	.....	310,000	.....	529	229,300	.....	470	.....	150,150	.....	517
Colorado	110,330	30,170	223	146,234	30,371	292	157,580	.....	.....	.....	146,196	29,638	320
Great Britain .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Illinois	313,372	46,114	500	280,124	196,503	513	237,088	32,848	534	.....	236,478	29,312	615
Indiana	236,560	166,474	370	198,132	124,539	338	.....	.....	.....	.....	187,438	81,860	843
Iowa	202,373	87,968	465	159,133	82,461	361	196,809	134,906	540	.....	159,792	76,001	550
Kansas .....	.....	.....	.....	221,687	47,245	650	138,808	68,136	388	.....	319,064	75,973	986
Kentucky	378,412	151,634	1186	291,854	132,090	939	296,719	155,642	803	.....	400,971	178,309	983
Maryland	510,819	170,273	661	645,549	415,968	814	443,140	238,614	.....	.....	886,611	207,663	.....
Missouri	150,861	73,592	401	151,926	122,709	369	125,438	82,271	255	.....	175,621	152,205	557
Nova Scotia	161,898	48,569	.....	336,513	38,802	1178	.....	.....	.....	.....	.....	.....	.....
Ohio	347,920	53,634	642	436,120	50,608	847	364,672	102,674	559	.....	293,151	90,025	431
Pennsylvania	177,983	76,166	454	167,711	68,270	882	151,521	66,776	401	.....	178,600	68,715	397
South Dakota .....	.....	.....	.....	.....	.....	.....	76,688	122,700	233	.....	.....	.....	.....
Tennessee	166,610	80,437	415	128,633	24,396	467	170,102	52,205	314	.....	62,695	.....	.....
Utah	180,886	40,186	.....	418,049	41,804	829	.....	.....	.....	.....	.....	.....	.....
Washington	20,788	27,157	72	131,317	31,812	314	.....	.....	68	.....	33,249	46,489	.....
West Virginia	241,909	51,167	384	151,790	77,510	172	178,974	81,866	.....	.....	118,965	.....	224

ANNUAL REPORT

	1896.			1897.			1898.			1899.		
	No. of Tons Mined for Each Accident.		No. of miners for each life lost.	No. of Tons Mined for Each Accident.		No. of miners for each life lost.	No. of Tons Mined for Each Accident.		No. of miners for each life lost.	No. of Tons Mined for Each Accident.		No. of miners for each life lost.
	Fatal.	Non-Fatal.		Fatal.	Non-Fatal.		Fatal.	Non-Fatal.		Fatal.	Non-Fatal.	
Alabama	205,201	.....	353	151,122	.....	326	117,851	.....	.....	.....	.....	.....
Colorado	49,582	57,146	99	.....	.....	.....	.....	.....	.....	.....	.....	.....
Great Britain	190,506	.....	606	207,739	.....	715	224,491	.....	.....	.....	.....	.....
Illinois	256,969	29,444	429	290,910	38,761	490	247,891	42,464	467	.....	.....	.....
Indiana	145,290	61,638	.....	264,225	176,170	.....	.....	.....	.....	390,908	49,444	424
Iowa	153,282	75,010	498	172,715	70,365	531	.....	.....	.....	247,470	190,365	401
Kansas	265,979	127,669	784	549,468	109,863	1450	.....	.....	.....	256,056	91,042	697
Kentucky	580,580	167,551	1258	275,328	132,372	645	.....	.....	.....	.....	.....	.....
Maryland .....	.....	.....	.....	.....	.....	.....	1,081,611	133,111	1143	.....	.....	.....
Missouri	151,272	121,007	412	308,674	105,625	1639	315,350	105,117	821	227,866	138,752	.....
Nova Scotia .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	146,796	105,146	.....
Ohio	314,942	81,211	694	311,221	87,668	720	270,463	90,736	545	269,643	77,985	475
Pennsylvania	144,205	84,419	342	177,350	91,856	424	332,852	140,278	.....	.....	.....	.....
South Dakota .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tennessee	121,077	50,259	.....	237,211	.....	.....	162,409	71,733	411	207,563	50,454	427
Utah	125,811	55,016	.....	194,031	32,388	.....	224,432	48,063	.....	.....	.....	.....
Washington	150,316	40,084	.....	190,027	31,671	.....	197,251	23,670	187	.....	.....	.....
West Virginia	205,692	101,257	372	200,040	77,607	346	.....	.....	.....	.....	.....	.....

November 16. John Griffith, Hutson No. 4 mine, Portage county, injured by fall of slate. Died January 6, 1899.

November 17. Michael Foy, Pine Hill mine, Columbiana county, fatally injured by a premature explosion.

November 26. Wm. Matthews, Hays No. 2 mine, Coshocton county, injured by a fall of roof. Died December 10, 1898.

December 9. Charles E. Boston, Captina mine, Belmont county, killed by a fall of coal and stone.

December 13. John Kellish, Dillon No. 2 mine, Jefferson county, killed by a fall of slate.

December 13. Henry Hill, King's mine, Guernsey county, run over by mine car. Died December 31st.

December 17. Geo. W. Littlejohn, Wellston No. 3 mine, Jackson county, fatally injured by being caught between two railway flats. Died December 28.

December 30. Henry Grindle, Calumet mine, Jefferson county, killed by trying to climb on the cage after it had started.

1899.

January 8. Dennis Trainer, Wellston No. 3 mine, Jackson county, killed by fall of slate.

January 18. Oscar Reynolds, Minker Run mine, Athens county, injured by fall of slate. Died January 20, 1899.

January 25. Stephen Hise, Coalgate mine, Hocking county, injured by a fall of coal. Died February 10.

January 26. Fred. Williams, Springfield No. 2 mine, Jackson county, killed by being caught in the cage.

February 4. Peter Fitchtnist, West Massillon No. 3 mine, Stark county, injured by a fall of coal. Died February 21.

February 7. Charles Bland, New Pittsburg No. 7 mine, Hocking county, killed by a fall of slate.

February 28. Albert J. Koontz, Central mine, Stark county, killed by a fall of coal.

March 9. Alvah Wooten, Superior No. 2 mine, Jackson county, killed by a fall of slate.

March 9. Henry C. Potts, Diamond No. 2 mine, Jefferson county, injured by a fall of coal. Died March 17.

March 11. Rees Tolbert, Milton No. 2 mine, Jackson county, killed by a fall of slate.

March 14. Isaac Besser, Hay No. 1 mine, Coshocton county, killed by a fall of rock.

March 16. John Keifer, Drake mine, Stark county, back broken by being caught under a cage.

March 21. Joseph Wardle, Wheeling Creek No. 1 mine, Belmont county, killed by a fall of soapstone.

March 21. Phillip James, Wheeling Creek No. 1 mine, Belmont county, killed by a fall of soapstone.

April 10. Patrick Donahue, East Goshen No. 1 mine, Tuscarawas county, injured by a fall of stone. Died April 24.

April 29. Stephen Pavelchok, Maple Hill mine, Belmont county, killed by a fall of soapstone.

- May 13. Holis James, Central mine, Guernsey county, killed by a fall of slate.
- May 16. Frank Collins, King's mine, Guernsey county, injured by falling under a mine car. Died May 17.
- May 22. Wm. A. Hinkle, Buckeye mine, Tuscarawas county, killed by a fall of rock.
- May 31. Jos. Benza, Wainwright No. 4 mine, Tuscarawas county, killed by a fall of slate.
- June 2. Frederick Givens, Clover Hill mine, Stark county, killed by a fall of slate.
- June 2. Andy Bandix, Dillon No. 2 mine, Jefferson county, killed by a fall of soapstone.
- June 5. Stanton Selby, Trail Run mine, Guernsey county, injured by a cage breaking and throwing him to the bottom of the shaft. Died June 17.
- June 7. John Hudick, Walhonding mine, Guernsey county, killed by a fall of slate.
- June 8. Thomas Wagstaff, Minker Run mine, Athens county, injured by a fall of slate. Died June 13.
- June 15. Jas. O'Brien, Singer mine, Stark county, killed by falling between coal flats on the outside.
- June 16. Bernhard Halterman, Phoenix No. 2 mine, Athens county, killed by being caught by a cage in a shaft.
- June 19. John Fontella, New Pittsburg No. 9 mine, Hocking county, killed by coming in contact with a live wire.
- June 30. Burt Harding, Walhonding mine, Guernsey county, injured by being caught between the mine cars and the trap door. Died July 28.
- July 11. John Peters, Eureka mine, Stark county, found dead in his room, caused by apoplexy.
- July 18. Allen Stevens, Tom Corwin No. 1 mine, Jackson county, killed by being caught between a mine car and rib.
- July 24. Peter Tena, Rock Hill mine, Belmont county, killed by a fall of coal.
- July 25. Edward B. Blake, Werner's No. 3 mine, Muskingum county, death caused by neuralgia of the heart.
- July 26. Geo. W. Leffler, Fluhart No. 1 mine, Jackson county, killed by a shot blowing through the rib.
- July 27. Frederick Walker, Upper Pigeon Run mine, Stark county, killed by a fall of stone.
- August 5. Sylvester Meeks, Fairfield mine, Columbiana county, killed by a water tank falling on him.
- August 9. Harrison Lovecy, Brooks Hill mine, Athens county, injured by a fall of slate. Died August 12.
- August 17. William Meeks, Pine Grove Lime mine, Lawrence county, killed by a fall of slate.
- August 21. Adolph Hibscher, No. 24 mine, Athens county, injured by a fall of coal. Died August 30.
- August 28. L. Pospichel, Bells Run No. 55 mine, Athens county, killed by falling in front of a mine car.
- August 31. Thomas J. Clark, Tom Corwin No. 1 mine, Jackson county, killed by a fall of slate.
- Rufus D. Clark, Tom Corwin No. 1 mine, Jackson county, killed by a fall of slate.
- September 13. Nick Kline, Silver Creek mine, Medina county, seriously injured by firing his own shot. Died October 17.
- September 18. Wm. Ramage, Forsythe mine, Guernsey county, died in a mine of heart failure.

September 20. James H. Wilson, E. B. Willard mine, Lawrence county, killed by a fall of slate.

October 6. John Courtright, Conesville No. 2 mine, Coshocton county, killed by a fall of rock.

October 6. Thomas Meryk, Wheeling Creek No. 1 mine, Belmont county, killed by a fall of stone and coal.

October 24. Frank Wilson, Diamond No. 2 mine, Jefferson county, killed by a fall of slate.

October 24. Wesley Householder, Diamond No. 2 mine, Jefferson county, killed by a fall of slate.

November 2. Samuel Emser, West Massillon No. 2 mine, Stark county, killed by a fall of rock.

November 14. Ezra Smalley, Klondike mine, Guernsey county, killed by a fall of slate.

SERIOUS ACCIDENTS.

1898.

November 16. Peter Urshal, Jr., Young Shaft mine, Stark county, leg broken by taking out a prop.

November 16. Finley J. Brown, Black Diamond mine, Morgan county, arm broken by a fall of draw slate.

November 16. John Fohner, Coal Ridge mine, Meigs county, injured by a fall of coal.

November 23. Clyde King, Dillon No. 2 mine, Jefferson county, leg broken by falling under a moving mine car.

November 23. Chris Evans, Woodland mine, Stark county, injured by a fall of bone coal.

November 25. Thomas Gleeson, Fluhart No. 2 mine, Jackson county, arm very badly injured by premature explosion.

November 28. Thomas McMillen, New Shaft mine, Columbiana county, collar bone broken by riding along on his mining machine on the entry.

November 29. Hugh Jones, Western Ohio mine, Stark county, hips badly bruised by a fall of coal.

December 1. Ben Bruce, Bells Run mine, Athens county, knee injured by a wire rope flying from the schieve wheel.

December 2. Anthony Anderson, Peacock mine, Meigs county, leg broken by a fall of rock.

December 2. James Stage, Kings mine, Guernsey county, leg broken by a fall of roof.

December 5. John Roberts, Erhard mine, Tuscarawas county, finger injured by mine car knocking out a prop, necessitating amputation.

December 7. Ted White, Turkey Foot mine, Summit county, shoulder dislocated by being caught between mine cars.

December 8. Charlie Ledgor, McFayden mine, Jefferson county, eye injured by being struck by coal flying from the pick while mining coal.

December 9. Frank Speck, Woodland mine, Stark county, injured by mine cars.

December 12. Fred Turski, Hern Brook mine, Stark county, ankle sprained by a fall of stone.

December 13. George Cornbower, New Greenville mine, Stark county, back injured by a fall of slate.

December 17. Hayes Garber, Walhonding mine, Guernsey county, injured by a fall of slate.

December 17. Frank West, Black Diamond mine, Athens county, leg mashed by a fall of soapstone.

December 21. Mike Vesek, Phoenix No. 2 mine, Athens county, leg bruised by a fall of bone coal.

December 22. Chas. King, Walhonding mine, Guernsey county, thumb injured by being caught in a mining machine, necessitating amputation.

December 26. Robert White, Milton No. 2 mine, Jackson county, three ribs broken by a fall of slate.

December 27. Wm. Middleton, Nicholson mine, Guernsey county, hips squeezed by being caught between mine cars and rib.

December 28. Herber Venerble, Singer Shaft mine, Stark county, leg injured by a fall of coal.

December 28. H. H. Scott, Walhonding mine, Guernsey county, injured by a fall of slate.

December 29. David Davis, Elm Run No. 3 mine, Stark county, leg broken by a fall of coal.

1899.

January 4. John Ross, Sand Run mine, Hocking county, hips and back injured by a fall of coal.

January 4. Rob Sheals, Walhonding mine, Guernsey county, two of his fingers taken off while coupling railway flats.

January 7. Robert Doyl, Standard mine, Belmont county, back injured by a fall of soapstone.

January 7. John Hughes, Minker Run mine, Athens county, thumb mashed by a fall of timber.

January 8. John Walsh, Phoenix No. 2 mine, Athens county, finger injured by being caught between mine car and rib.

January 11. Sam Davis, Black Diamond mine, Athens county, leg injured by a mine car.

January 12. Andy Carduc, Dillon No. 2 mine, Jefferson county, injured by a fall of limestone.

January 13. Edgar Clark, Walhonding mine, Guernsey county, head injured by a fall of slate.

January 14. William Morris, New Castle mine, Lawrence county, leg broken by a fall of slate.

January 16. C. Holobaugh, Fairfield No. 2 mine, Columbiana county, foot broken by a fall of coal.

January 16. Andy Blacker, Cisco mine, Guernsey county, face and hands injured by trying to dry a keg of damp powder with their lamps and the powder catching fire.

January 16. Geo. Brongo, Cisco mine, Guernsey county, same as preceding accident.

January 16. Clew Guy, Fairfield No. 2 mine, Columbiana county, foot injured by a fall of coal.

January 18. Frank Kirby, Milton No. 2 mine, Jackson county, leg bruised by being caught between mine cars.

January 18. Harry Kittinger, Singer Shaft mine, Stark county, back injured by a fall of slate.

January 20. Sam Eblin, Peacock mine, Meigs county, shoulder injured, squeezed between mine car and roof.

January 21. George Huvig, Warwick mine, Stark county, injured by an explosion of gas.

January 21. Isaac Williams, Walhonding mine, Guernsey county, leg broken by a fall of slate.

January 21. Arthur Andrews, No. 10 mine, Athens county, leg broken by riding on a mine car.

January 24. William Penman, Cherry Valley No. 3 mine, Columbiana county, arm broken by being kicked by a mule.

January 25. Martin Boll, Pine Grove Ore mine, Lawrence county, injured by a fall of slate.

January 25. Dennis Gallagher, Milton No. 2 mine, Jackson county, jaw bone fractured by handle of lifting jack slipping.

January 27. David Welsh, Block mine, Perry county, back injured by a fall of slate.

February 1. Phil Fisher, No. 29 mine, Hocking county, leg injured by a fall of coal.

February 1. Milkus Stulachak, Cisco mine, Guernsey county, hips injured by a fall of coal.

February 2. Dave Mason, Walhonding mine, Guernsey county, arm and head injured by a fall of coal.

February 3. Bert Shaub, Young mine, Stark county, head and face injured by a fall of slate.

February 7. John Stoye, No. 21 mine, Perry county, hip injured by slipping and falling while going in the mainway.

February 10. John W. Smith, Hutson No. 1 mine, Portage county, end of finger cut off by a fall of slate.

February 13. Elias Boyd, Wainright No. 4 mine, Tuscarawas county, thumb crushed by a fall of coal.

February 15. Wm. Bane, Dillon No. 2 mine, Jefferson county, leg broken by falling in front of a loaded mine car.

February 18. John Jones, Upper Pigeon Run mine, Stark county, two ribs broken by a fall of stone.

February 21. Wm. Lewis, Jr., Wainright No. 4 mine, Tuscarawas county, collar bone broken and shoulder dislocated by being caught between mine car and roof.

February 23. Samuel Green, Long Run mine, Jefferson county, seriously injured by a fall of slate.

February 25. Kaleb Shalto, Glenwood mine, Noble county, leg broken by a fall of slate.

February 27. Everet Wilt, Minker Run mine, Athens county, leg broken by fall of draw slate.

February 28. Howard Hall, Walhonding mine, Guernsey county, toe cut by being struck by a moving mine car.

February 28. Thomas Gallagher, No. 16 mine, Athens county, thigh bruised by a fall of coal.

March 1. Arthur Nell, Hay No. 2 mine, Coshocton county, face and hands burned with powder.

March 1. Harvey Shrader, Minglewood Slope mine, Stark county, hand cut by mine cars.

March 1. Barney Shaver, Belmont county, arm fractured while setting a post.

March 2. John Souder, New Greenville mine, Stark county, hand injured by fall of slate.

March 4. James Lawton, Walhonding mine, Guernsey county, face and hands burned by gas.

March 6. John O'Leary, Rend's No. 4 mine, Athens county, leg broken by a fall of coal.

March 6. William Everet, Nutwood mine, Stark county, foot broken by a fall of slate.

March 7. Peter Huffman, Young's Shaft mine, Stark county, leg and hip bruised by a fall of coal.

March 10. John Minto, Nicholson mine, Guernsey county, hip injured by a fall of slate.

March 11. Stephen Wangler, Milton No. 2 mine, Jackson county, back and ribs injured by a fall of slate.

March 11. Jacob Gross, Upper Pigeon Run mine, Stark county, ankle injured by a fall of stone.

March 13. George Countsley, Salem mine, Columbiana county, injured by being hit by the slack chute while moving a loaded slack car.

March 16. Charles Arend, Dover F. B. Co. mine, Tuscarawas county, two ribs broken by a fall of coal.

March 18. William Raffles, Walhonding mine, Guernsey county, leg fractured by being caught by an empty mine car.

March 18. Alonzo Fowler, Glenwood mine, Noble county, burned by gas.

March 18. Daniel Winsworth, Glenwood mine, Noble county, burned by gas.

March 18. Teddie Brumlo, Glenwood mine, Noble county, burned by gas.

March 19. John Newman, Wainright mine, Jackson county, hands and face burned by gas.

March 20. William Austin, Conesville No. 1 mine, Coshocton county, leg broken by a fall of roof.

March 25. A. Golan, Dillon No. 2 mine, Jefferson county, leg broken by fall of soapstone.

March 31. J. B. Kuntz, Failor mine, Stark county, leg fractured by a fall of rock.

April 2. Alex Roth, Wainright No. 4 mine, Tuscarawas county, foot injured while coupling railway cars.

April 4. David Erbles, Sugar Creek mine, Tuscarawas county, back injured by a fall of top coal.

April 4. Oliver Clark, Smith mine, Stark county, head badly injured and jaw bone broken by a fall of coal.

April 5. August Leidket, Massillon Peacock mine, Tuscarawas county, eye injured by a premature explosion.

April 6. Peter McBride, Rend's No. 4 mine, Athens county, leg injured by mine car.

April 7. Samuel Collier, Camp Creek mine, Stark county, back injured and ankle broken by a fall of slate.

April 10. O. F. Ashley, Syracuse Shaft mine, Meigs county, injured while riding on loaded mine cars.

April 15. Frank Snyder, Upper Pigeon Run mine, Stark county, head injured by a fall of slate.

April 16. Ed. Smith, Black Diamond mine, Athens county, two fingers cut off by putting machine truck on track.

April 17. Herman Feaster, Sulphur Springs mine, Perry county, leg broke by mine car jumping the track.

April 24. Albert Swanson, Hutson No. 4 mine, Portage county, ribs fractured by a fall of stone.

April 25. William Martin, Walnut Hill mine, Belmont county, leg broke by a fall of slate.

May 1. Charles Trace, Tom Corwin No. 1 mine, Jackson county, injured by a fall of slate.

May 1. Robert Lashley, O. & W. Va. mine, Belmont county, foot injured by mine cars running over it.

May 2. John Radigan, No. 21 mine, Perry county, back and arm injured by a fall of slate. Arm crushed.

May 5. Ben Oxley, Dillon No. 2 mine, Jefferson county, foot injured by bumper on mine cars.

May 5. Henry Craig, Kelly No. 2 mine, Jefferson county, back and limbs injured by a fall of stone.

May 6. John Holsapel, Jr., New Castle mine, Lawrence county, face burned by a powder explosion.

May 6. John Holsapel, Sr., New Castle mine, Lawrence county, face burned by a powder explosion.

May 6. Andy Holsapel, New Castle mine, Lawrence county, face burned by a powder explosion.

May 9. Joe Sable, Dillon No. 2 mine, Jefferson county, knee dislocated by a mine car running over it while walking down an incline.

May 11. Frank Shecora, Crescent mine, Belmont county, leg broken by a fall of soapstone.

May 15. James Mead, Brock Hill mine, Tuscarawas county, leg broken by riding on a tail chain.

May 19. Phillip Keller, Elm Run No. 3 mine, Stark county, leg broken by a fall of rock.

May 19. E. Burns, Fluhart No. 2 mine, Jackson county, injured by falling under a moving trip.

May 23. Fred Earl, New Shaft mine, Columbiana county, leg broken by a fall of slate.

May 24. Thomas Abbett, Salem mine, Columbiana county, collar bone broken by mule squeezing him against a prop.

May 27. Freddie Jones, Black Diamond mine, Morgan county, rib broken by a fall of bone coal.

May 29. Ed. Hollingshead, Wainright mine, Jackson county, leg broken by car jumping the track.

June 5. L. Lenard, Imperial mine, Guernsey county, foot mashed while caging a car.

June 6. Charlie Hurtel, New Shaft mine, Columbiana county, leg broken by fall of coal.

June 8. Lon Tague, Block mine, Perry county, leg broken and back injured by a fall of rock.

June 9. George Fielder, Long Run mine, Athens county, injured by a fall of soapstone.

June 16. John Simpson, Gaylord mine, Belmont county, foot injured by being caught in frog on the entry.

June 16. Michael Ash, Wainright No. 4 mine, Tuscarawas county, seriously injured by a fall of rock.

June 26. Howard Hardin, Walhonding mine, Guernsey county, shoulder injured by being run over by a loaded mine car.

June 30. John Pratton, Gaylord mine, Belmont county, rib broken by a fall of slate.

July 6. John Duke, Belmont No. 2 mine, Belmont county, back injured by a fall of stone.

July 7. John Allison, Crescent mine, Belmont county, two ribs broken by slipping off a bar while prying coal.

July 14. Patrick Halland, Morgan Run No. 3 mine, Coshocton county, hit in the eye by a piece of dirt from the mule's foot.

July 14. Ed. Broom, Hartford mine, Guernsey county, shoulder dislocated by his foot slipping and falling against a car.

July 15. Thomas Gaffney, High Shaft mine, Jefferson county, both legs broken by being run over by a mine car.

July 18. William Carnahan, Calumet mine, Jefferson county, head cut and face burned while tamping a shot. Skull fractured.

July 23. Lawrence Busby, King's mine, Guernsey county, hand injured by being caught between mining machine bar and roof, machine bar running through it.

July 24. William Turvey, Hartford mine, Guernsey county, leg broken by riding on a mine car.

July 27. John Poss, Dillon No. 2 mine, Jefferson county, back injured by a fall of roof.

July 27. William Holt, Black Diamond mine, Belmont county, hip injured and ankle broken by a fall of stone.

July 28. William Alrem, Walhonding mine, Guernsey county, foot injured by being caught by a mine car.

August 4. Ed. Roman, Walnut Hill mine, Belmont county, foot broken by a fall of slate.

August 5. George Robinson, Congo No. 2 mine, Perry county, thumb taken off while coupling mine cars.

August 9. Charles Scott, Sunday Creek No. 10 mine, Athens county, injured by mining a standing shot.

August 12. Joe Kiefer, Somers mine, Hocking county, leg injured by a fall of coal.

August 14. Jesse Rogers, Congo No. 2 mine, Perry county, knee dislocated by a fall of slate.

August 21. John Musslewhite, No. 10 mine, Athens county, leg broken by mine car jumping the track.

August 23. Thomas Roberts, King's mine, Guernsey county, arm broken by being caught between roof and a mine car.

August 24. Mike Crosic, Wellston No. 3 mine, Jackson county, hips injured by a fall of slate.

August 25. Joseph Roman, Walhonding mine, Guernsey county, knee dislocated by being caught under the end of a loaded mine car.

August 26. Urwen Durf, Nail Mill mine, Belmont county, leg so badly injured as to necessitate amputation.

August 28. Homer McCreary, Trail Run mine, Guernsey county, leg taken off by being caught in a chain of mining machine.

August 28. Upton Leeper, Forsythe mine, Guernsey county, collar bone broken by empty car becoming detached and run back down slope.

August 29. George White, Card No. 3 mine, Medina county, ankle dislocated by a fall of slate.

August 29. William Clifford, Wheeling Creek No. 1 mine, Belmont county, ear injured by a fall of soapstone; also back injured.

August 31. John Whimplesenger, Cherry Valley No. 3 mine, Columbiana county, leg injured by a fall of coal.

September 4. Robert Farmer, Northern mine, Jackson county, legs broken by a mine car.

September 5. James Fleming, Wheat Hill mine, Columbiana county, legs broken by a fall of coal.

September 11. Samuel Wakley, New Pittsburg mine, Hocking county, seriously injured by a fall of coal.

September 13. Bert Carr, Acme mine, Tuscarawas county, foot injured by a mine car running over it.

September 15. John James, Spring Valley mine, Perry county, leg injured by fall of slate.

September 18. John Aleshire, Milton No. 2 mine, Jackson county, arm broken by being caught between mine cars and post.

September 18. George Garrigar, Dillon No. 2 mine, Jefferson county, leg broken by a fall of slate.

September 19. Mathew Hamilton, Morgan Run No. 3 mine, Coshocton county, injured by a fall of slate.

September 25. John Watkins, Hudson No. 5 mine, Portage county, hip bruised by a fall of slate.

September 27. Harrison Hellyer, Brush Fork No. 3 mine, Hocking county, limbs and neck injured by a powder explosion.

September 27. Frederick Gilts, West Brookfield mine, Stark county, finger mashed by mine car.

October 1. John Kurby, Milton No. 2 mine, Jackson county, leg broken by a fall of draw slate.

October 1. John Connell, Furnace No. 2 mine, Perry county, leg broken by a fall of coal.

October 2. B. Covey, Wainright mine No. 4, Tuscarawas county, back injured by a fall of slate.

October 3. Ben. Evans, Elm Run No. 4 mine, Stark county, back injured by a fall of stone.

October 6. Mortica Williams, West Massillon No. 3 mine, Stark county, leg broken by a mine car.

October 9. Milton Porter, Standard mine, Belmont county, head and shoulder injured by a fall of soapstone.

October 9. Steve Fisher, No. 21 mine, Perry county, back and hips injured by a fall of coal.

October 11. C. H. Dixon, Coalgate mine, Hocking county, both legs and collar bone broken by a fall of slate.

October 11. L. S. Timerman, Young's mine, Harrison county, seriously injured by a fall of stone.

October 11. Hamp Dixon, Somer's mine, Hocking county, both legs broken by a fall of slate.

October 11. Pete Kelicker, Lobby mine, Tuscarawas county, finger taken off by being caught in the tail chain.

October 11. John Moonard, Spring Valley, Perry county, leg broken by a fall of coal.

October 11. Samuel Barr, Walhonding mine, Guernsey county, thumb taken off by being caught between two cars.

October 11. Dolph Henneman, Milton No. 2 mine, Jackson county, arm seriously injured by spragging a mine car.

October 13. Homer Davis, Glenwood mine, Noble county, leg injured by mine car jumping the track.

October 13. Thomas Spurrier, No. 21 mine, Perry county, leg and arm broken by a fall of slate.

October 13. John Richards, New Greenville mine, Stark county, hand injured by a fall of coal.

October 16. Benjamin Watkins, West Brookfield mine, Stark county, four ribs broken by a fall of coal.

October 16. Andrew Humble, Minglewood No. 4 mine, Stark county, collar bone broken by a fall of stone.

October 19. William Stroll, Dennison Rolling Mill mine, Tuscarawas county, seriously injured by a fall of rock.

October 23. Jordan Colgrove, Mingo mine, Perry county, ankle sprained by a fall of slate.

October 24. Frank Raburn, Tom Corwin No. 1 mine, Jackson county, seriously injured by falling in front of a loaded trip.

October 27. Andy Cirpinski, Long Run mine, Jefferson county, finger injured by a fall of slate.

October 27. Charles Hartley, No. 16 mine, Athens county, toes mashed by haulage motor.

October 28. Michael Lally, Minglewood No. 3 mine, Stark county, leg broken by a fall of slate.

October 30. Jos. Alterman, Star No. 4 mine, Jackson county, spine injured by a fall of slate.

October 30. John Bosche, Hern Brook mine, Stark county, back and hip bruised by a fall of coal.

October 30. Henry Sterling, Dillon No. 2 mine, Jefferson county, leg broken by a fall of slate.

November 1. David Bryant, Lost Run mine, Hocking county, ribs broken by falling from a mine car.

November 2. William Parson, Morgan Run No. 3 mine, Coshocton county, foot injured by a fall of coal.

November 2. Phillip Gravins, Central mine, Stark county, injured by a fall of slate.

November 3. Grant Naragon, Keystone mine, Perry county, big toe mashed by a mine car.

November 7. E. W. Woody, Minker Run mine, Athens county, three fingers taken off and hips bruised by a fall of slate.

November 8. Walter Taylor, Snake Hollow mine, Hocking county, arm broken by a fall of top coal.

November 8. Joseph Bardock, New Greenville mine, Stark county, three ribs broken by a fall of slate.

November 9. Henry Seicks, Walnut Hill mine, Belmont county, shoulder injured by a fall of slate.

November 9. Ross Morgan, New Crescent mine, Perry county, foot injured between mine cars.

November 10. Joseph Dudake, Cherry Valley No. 3 mine, Columbiana county, head, face and hands cut by blowing out a shot.

November 10. Frank Saffel, Glen mine, Belmont county, back sprained by a fall of slate.

November 13. John Dorsey, Keystone mine, Perry county, hip injured by a fall of draw slate.

November 13. Melvin Shelton, Walhonding mine, Guernsey county, squeezed across the hips and stomach by falling in front of a loaded mine car.

November 14. Joseph Jeffers, Morgan mine, Belmont county, three ribs broken and hand injured by falling from a tippel.

November 14. Robert B. Jones, Gordon mine, Tuscarawas county, foot injured by a fall of coal.

November 15. George F. Brick, Acme mine, Tuscarawas county, leg broken by drum frame giving way.

MINOR ACCIDENTS.

1898.

- November 18. Robert Robinson, Keystone mine, Perry county, knee injured a fall of coal.
- November 18. Harry Conway, Taggart's mine, Belmont county, knee injured by a fall of slate.
- November 23. John Chicoski, Long Run No. 1 mine, Jefferson county, injured by an explosion of powder.
- November 26. William H. Williams, Wheeling Creek No. 1 mine, Belmont county, finger injured by being caught between mine car and roof.
- November 26. Thomas Reese, Jr., Young's Shaft mine, Stark county, two fingers mashed by mine cars running off track.
- November 28. Dave Zula, Long Run No. 2 mine, Jefferson county, shoulder by a fall of stone.
- December 1. John Eshtenkamper, No. 16 mine, Athens county, finger injured mine car.
- December 10. D. G. Delay, Raccoon mine, Vinton county, injured by a scale falling.
- December 10. William Boling, New Pittsburg No. 7 mine, Hocking county, injured by being caught between water car and rib.
- December 10. Henry Cassic, Wheeling Creek mine No. 1, Belmont county, injured by being caught between mine car and roof.
- December 12. Fred Elder, No. 8 mine, Perry county, leg injured by a fall of slate.
- December 14. James Galloway, Long Run mine, Jefferson county, injured by being kicked by a mule.
- December 23. George Baynhan, No. 29 mine, Hocking county, finger injured coupling mine cars.
- December 26. Jacob Deer, Milton No. 2 mine, Jackson county, head and shoulder bruised by a fall of slate.
- December 29. John Mulholland, Wesley mine, Jefferson county, slightly injured by a fall of stone.
- December 30. A. C. Andrews, No. 16 mine, Athens county, finger injured mine cars.
- December 31. Thomas Thomas, No. 16 mine, Athens county, finger injured mine car.

1899.

- January 4. Charlie Thacker, Wellston No. 3 mine, Jackson county, back injured by a fall of slate.
- January 8. J. McGregor, Davis mine, Stark county, spine injured by a fall of slate.
- January 8. Nick Earls, New Shaft mine, Columbiana county, foot injured a fall of slate.
- January 9. Charles Burk, Black Diamond mine, Athens county, toes injured mine cars jumping the track.
- January 12. Charles Erkroad, Singer Shaft mine, Stark county, hand injured by coal falling down the shaft.
- January 18. Oscar Kennoes, Minker Run mine, Athens county, injured by fall of slate.
- January 19. Ed. Powell, Wade mine, Coshocton county, face and hands cut shot blowing through the rib.

January 20. William Smith, Kelley mine, Lawrence county, shouldered by jumping out of moving car.

January 20. D. Owens, Glenwood mine, Noble county, face injured by explosion.

January 25. Al. Schieffler, Lake Erie mine, Stark county, breast injured by a fall of coal.

January 26. Frank Meanering, Springfield mine, Jackson county, injured by being caught in a cage.

February 2. Thomas Hopper, Elm Run mine, Stark county, foot bruised by a fall of coal.

February 7. John J. Williams, Hutson No. 4 mine, Portage county, finger mangled by spragging a mine car, his finger being caught in the wheel.

February 9. Taylor McLean, Raccoon mine, Perry county, injured by a pan falling from tippie.

February 10. Griff Russell, Keystone mine, Perry county, leg injured by being under loaded mine car.

February 15. Jake Six, West Floodwood mine, Athens county, head injured by a fall of slate.

February 15. Charles Six, West Floodwood mine, Athens county, head injured by a fall of slate.

February 15. Ed. Cochran, Keystone mine, Perry county, leg injured by being struck with miners' pick.

February 17. Jake Evans, West Floodwood mine, Athens county, back and neck injured by a fall of slate.

February 17. Joseph Zando, Western Ohio No. 1 mine, Stark county, injured by a fall of stone.

February 23. James Parks, Congo No. 2 mine, Perry county, toe mangled by a machine truck, foot caught under the truck.

February 26. L. Trouton, Wheeling Creek mine, Belmont county, head injured by mine car jumping the track.

March 2. Arthur James, Superior No. 5 mine, Jackson county, foot injured by mine cars.

March 4. John Nolan, Flushing mine, Belmont county, head and neck injured by mine car.

March 7. Thomas Louderbach, Price mine, Jackson county, finger injured by a fall of slate.

March 7. Frank Hooten, Fluhart No. 1 mine, Jackson county, back injured by being caught between car and roof.

March 8. Frank Spence, Fluhart No. 1 mine, Jackson county, ankle injured by a fall of coal.

March 9. Aaron Baker, Louisville B. & T. Co. mine, Stark county, head injured by a fall of shale.

March 16. Wm. Greene, Minglewood Slope, Stark county, foot run over by a mine car.

March 19. John Mussic, Wainright mine, Jackson county, hands burned by gas.

March 20. Melvin Dansen, Black Diamond mine, Belmont county, ankle injured by a fall of slate.

March 20. C. McDonald, Imperial mine, Guernsey county, injured by being kicked by a horse.

March 23. William White, Wallhonding mine, Guernsey county, shoulders slightly injured while drawing props.

March 23. John Thompson, McFayden mine, Jefferson county, foot injured by a fall of soapstone.

March 24. J. Hammond, Imperial mine, Guernsey county, leg bruised by a fall of coal.

March 25. Bert Labus, Starkey mine, Carroll county, foot injured by being caught under a mine car.

March 27. Walter Edwards, Houk mine, Tuscarawas county, injured by a fall of coal.

March 28. Homer Zerger, Young's Shaft mine, Stark county, face cut by a fall of stone.

April 2. Charles Wells, Morgan Run mine, Coshocton county, finger mashed while coupling mine car.

April 8. William Kimes, O. & W. Va. mine, Belmont county, foot injured by a fall of slate.

April 8. John Decker, Dalton mine, Wayne county, back injured by a fall of slate.

April 9. W. Holliday, Long Run mine, Jefferson county, fingers mashed by being run over by a loaded mine car.

April 15. Robert Wilson, Federal Valley No. 1 mine, Athens county, foot injured by a fall of soapstone.

April 24. Eugene Killingsworth, Syracuse Shaft mine, Meigs county, injured by trying to get on a loaded mine car.

April 28. Richard Davis, Western Ohio No. 1 mine, Stark county, foot injured by a fall of coal.

April 28. Thomas Turrell, Glendale mine, Meigs county, hand injured by being caught between prop and mine car.

May 1. Joseph Kearns, No. 24 mine, Athens county, head, back and legs bruised by a standing shot.

May 6. James Dwaracek, Crescent mine, Belmont county, thigh bruised by being caught between mine car and rib.

May 10. Walter Gray, Houk mine, Tuscarawas county, injured by being squeezed between mine car and door.

May 18. Wm. Kelley, Kelley mine, Lawrence county, ankle sprained by jumping on mine car while running.

May 24. Chas. Jones, Daleton mine, Athens county, hand injured by taking off check from self dumping mine car.

May 28. Andy Baldwin, Kelley mine, Lawrence county, foot injured by being caught between car bumpers.

May 31. John Sandrett, Taggart's mine, Belmont county, injured by a fall of stone.

June 1. Woody Coleman, Akron No. 4 mine, Medina county, foot injured by a fall of soapstone.

June 5. Edmund Sutcliffe, Huston No. 5 mine, Portage county, leg injured by a fall of coal.

June 10. Albert Malburn, Tom Corwin No. 2 mine, Jackson county, arm and shoulder injured by being caught in an electric pump.

June 19. Edward Hall, South Side mine, Tuscarawas county, injured by a shot blown through the rib.

June 27. W. B. Montgomery, Milton No. 2 mine, Jackson county, two fingers mashed while spragging a mine car.

June 29. Charlie Tearsic, Taggart's mine, Belmont county, foot injured by a fall of slate.

July 1. Andy Matti, Long Run mine, Jefferson county, foot and back injured by a fall of slate.

July 5. Dennis Finity, Milton mine, Jackson county, three fingers mashed while checking a mine car.

July 10. John Conick, Wheeling Creek No. 1 mine, Belmont county, head and shoulders injured by a fall of soapstone.

July 14. Miller Blackburn, Dillon No. 2 mine, Jefferson county, legs and back injured by being caught between ribs and loaded mine cars.

July 15. George Clouse, No. 15 mine, Hocking county, finger injured by being caught in a mining machine.

July 22. Nick Huffman, West Brookfield mine, Stark county, face and hands burned by fire from a shot.

July 24. Mike Howinski, Dillon No. 2 mine, Jefferson county, hand mashed by being caught between post and loaded mine car.

July 27. Theodore Harper, Klondike mine, Guernsey county, back injured by a fall of slate.

July 28. John Border, Magnolia mine, Carroll county, injured by a fall of roof.

July 28. Charles Powell, Forsythe mine, Guernsey county, squeezed between a mule and mine car.

July 29. Milford Russell, Daleton mine, Athens county, face and neck burned by a discharge of powder.

August 4. Chas. West, Lower mine, Perry county, hand injured by a fall of rock.

August 7. Orpheus Russell, Superior No. 5 mine, Jackson county, leg injured by a fall of slate.

August 9. Hurlie Woogerd, Daleton mine, Athens county, foot injured while coupling mine cars.

August 10. Andy Friend, Price (G. & B.) mine, Jackson county, head and shoulder injured by falling down an air shaft.

August 16. Jerry Amburn, Milton No. 2 mine, Jackson county, head injured by the weigh box descending.

August 16. John Rousch, Milton No. 2 mine, Jackson county, back injured by a fall of slate.

August 17. George Redal, Kelley mine, Lawrence county, injured by a fall of slate.

August 20. James Tipton, Kelley mine, Lawrence county, foot injured by a car falling on it.

August 21. Mathew Alison, Crescent mine, Belmont county, leg injured by being run over by a mine car.

August 21. John Hamilton, No. 10 mine, Athens county, injured by tail chain of mine car.

August 21. Myric Evans, Singer mine, Stark county, leg injured by a fall of coal.

August 26. Abe Larid, Cassingham mine, Coshocton county, back injured by a fall of slate.

August 26. Thomas Corbett, Orbiston No. 10 mine, Athens county, hip injured by being caught between mine car and post.

August 28. Hugh Collins, Forsythe mine, Guernsey county, collar broken by empty car becoming detached and running back down slope.

August 31. Thomas Scaley, Cherry Valley No. 3 mine, Columbiana county, leg injured by being hit with the haulage rope.

September 7. Adam Wetzinger, Tuscarawas county, jaw injured by letting the pipe down a well and it slipping through the chain and a pry flying and hitting him.

September 8. Jonathan Bigrigg, Morgan Run No. 3 mine, Coshocton county, **legs** injured by a mule falling on them.

September 11. Thomas Smith, New Pittsburg No. 7 mine, Hocking county, **injured** by a fall of coal.

September 14. David Read, Clover Hill mine, Stark county, **back** injured by a fall of slate.

September 17. Charles Handson, Cassingham mine, Coshocton county, **back** injured by a fall of roof.

September 24. D. Rider, Tom Corwin No. 1 mine, Jackson county, **injured** by being caught between mine cars and entry.

September 27. James Osborn, Acme mine, Tuscarawas county, **foot** injured by a spike running through it.

October 1. B. F. Bess, No. 29 mine, Hocking county, **hand** injured by a fall of slate.

October 3. Bennett Dingey, O. & W. Va. mine, Belmont county, **finger** injured while coupling mine cars.

October 3. Jantes Messer, King's mine, Guernsey county, **side and head** injured by a mine car.

October 6. John Theilen, Lake Erie No. 2 mine, Stark county, **foot** injured by a fall of draw slate.

October 9. Charles Powell, Fluhart No. 1 mine, Jackson county, **head and leg** injured by a premature explosion.

October 9. William Masters, Taggart's mine, Belmont county, **breast** injured by mine cars.

October 12. Steve Fosicker, Dillon No. 2 mine, Jefferson county, **ankle** injured by fall of slate.

October 13. Fred Burkhardt, Pittsburg mine, Belmont county, **injured** by a fall of slate.

October 16. Samuel Barton, Glenwood mine, Noble county, **leg** injured by being caught between mine cars.

October 18. A. Demion, Dillon No. 2 mine, Jefferson county, **foot and leg** injured by a fall of coal.

October 19. Henry Morris, O. & W. Va. mine, Belmont county, **fingers** injured by coupling mine cars.

November 2. Thomas Day, Black Diamond mine, Athens county, **foot** mashed by a fall of soapstone.

November 8. Frank Wolf, Buckhorn mine, Tuscarawas county, **leg** injured by being caught between mine cars.

November 8. John Casey, Kelley mine, Lawrence county, **ankle** sprained by being caught between car bumpers.

November 11. W. W. Cousins, Belmont No. 2 mine, Belmont county, **injured** by a fall of slate.

November 11. Walter Durban, Long Run mine, Jefferson county, **foot** injured by being caught between car bumpers.

November 11. Oscar Ertle, Young's Shaft mine, Stark county, **head and face** burned by gas.

November 11. Ernest Slusser, Young's Shaft mine, Stark county, **head and face** burned by gas.

ROBERT M. HASELTINE,
Chief Inspector of Mines, Columbus, Ohio.

DISTRICT INSPECTORS.

FIRST DISTRICT

Comprises the counties of Hocking, Vinton, Jackson and Scioto.

SAMUEL LLEWELLYN, Inspector.,
Coalton, Jackson county, Ohio.

SECOND DISTRICT

Comprises the counties of Athens, Washington, Meigs, Gallia and Lawrence.

L. W. HULL, Inspector.
Glouster, Athens county, Ohio.
Succeeded by David H. Williams, Glouster, Ohio.

THIRD DISTRICT

Comprises the counties of Perry, Muskingum, Morgan and Noble.

DAVID B. WILSON, Inspector.
Corning, Perry county, Ohio.

FOURTH DISTRICT

THOMAS MCGOUGH, Inspector.
Bridgeport, Belmont county, Ohio.

FIFTH DISTRICT

Comprises the counties of Harrison, Jefferson, Carroll and the southern half of Columbiana.

JAMES P. DAVIS, Inspector.
Dell Roy, Carroll county, Ohio.

SIXTH DISTRICT

Comprises the counties of Wayne, Stark and Tuscarawas.

W. K. MOORE, Inspector,
North Lawrence, Stark county, Ohio.

SEVENTH DISTRICT

Comprises the counties of Medina, Summit, Portage, Trumbull, Mahoning
and the northern part of Columbiana.

REES T. DAVIS Inspector,
East Palestine, Columbiana county, Ohio.

Mines Visited by the Chief Inspector During the Year.

DILLON NO. 2.

Is located in Mt. Pleasant township, Jefferson county, and is owned by the Wheeling & Lake Erie Coal Co. This mine was inspected on November 16th, the day following the inspection of No. 1, to which this mine is attached, the opening being but a short distance from that of the former, and is driven into a hill on the opposite side of the ravine. This mine was again visited on October 26th, in company with Inspector James P. Davis. At this time they were employing three hundred and seventy-five miners, and thirty-one inside men. A fan was providing fifty-one thousand feet of air at the inlet, which was well carried into the mine. At the faces of the 13th and 14th entries there were 11,750 feet of air supplying thirty-eight miners; on the 15th and 16th right there were 18,900 feet for forty-two miners; on the 17th and 18 right 15,500, and at each of the faces on the main entry 17,200 feet; on the 17th and 18th left there were 15,200 feet; and on the 15th and 16th left, 19,200 feet; after passing on 13th and 14th left entries and into the No. 2 opening on the 9th and 10th right entries there were 10,200 feet; on the 7th and 8th left entries on the second opening there were 12,900 feet; on the 3rd and 4th face entries on the right the current was gathered up until there was 41,000 feet, and on the No. 3 opening there were 9,800 feet of air going to thirty-eight men. The rooms and entries and the general condition of the mine were entirely satisfactory.

LONG RUN.

Is located in Mt. Pleasant township, Jefferson county, and is owned by the Wheeling & Lake Erie Coal Co. This mine is under the management of J. J. Roby, who is superintendent, and Wm. Fitzgerald who is mine boss. It was inspected on November 17th, 1898, and found in excellent condition. In the main air course the volume passes into mine and 28,856 cubic feet of air was registered at this point. At the last breakthrough in the 7th and 8th left entries, there were 11,315 feet passing; at the head of the 9th and 10th left entries it had diminished to 4,248 feet. On entry No. 4 near the double parting 8,750 feet of air was flowing. In the last breakthrough at the head of the first and second left entries there were 8,268 feet. At the head of the 5th and 6th face entries 10,080 feet of air were found; at the head of the 3rd and 4th left

entries 5,720; in the last breakthrough in the 5th and 6th entries, 2,940 feet. The roads and entries were in a good condition, and the mine satisfactory.

A second inspection was made of this mine on October 27th. At this time the mine was employing two hundred and sixty men. A volume of 32,800 feet of air was passing into the mine. At the face of the main butt entries there were 12,100 feet of air; on the 1st and 2nd butt entries, from the 3rd and 4th right entries there were 10,000 feet of air supplying twenty-six miners; on the 3rd and 4th right entries there were 13,500 feet of air for thirty-five miners, and on the 5th and 6th, from the 3rd and 4th right there were 14,900 feet of air for six miners; at the face of the 3rd and 4th butt entries from the 1st and 2nd face entries there were 16,150 feet of air, and on the 5th and 6th, 14,800 feet; on the 7th and 8th 21,000 feet which was supplying thirty-five men; on the 9th and 10th there were 25,000 feet for forty men. This mine was in excellent condition throughout.

CISCO.

Is located in Valley township, Guernsey county, and is operated by the Opperman Coal Co. Thos Richards is superintendent, and Isaac Bird mine boss. This mine was visited on November 18th, 1898, in company with Thomas McGough, district inspector. In the operation of the mine the men in operating a mining machine accidentally cut into an abandoned oil well, and before realizing the fact, began to examine it with an open lamp, which resulted in their being more or less severely burned. At the time of the visit the coal had been removed and the well securely plugged. In order to further insure their safety it was suggested that an additional pipe be placed in the hole extending well into the floor and through and above the coal seam, and that it be thoroughly sealed both at the top and bottom. As an additional precaution an air shaft had been sunk near by, which it is thought, will remove any element of danger as the flow of gas is very light.

IMPERIAL

Is located in Valley township, Guernsey county, and is operated by the Hamilton Mining Co. W. P. Devore is superintendent, and Edward Doney is mine boss. It was inspected November 19th, 1898, and is a new mine near Hartford Station on the Cleveland, and Marietta Railroad. The coal mined is the Upper Freeport, and as far as driven indications are that it will be among the finest bed of this coal yet mined in the State. The mine has been opened on the three entry system, and is provided with a steel tippie and all of the modern improvements. It is the finest equipped mine in the Cambridge field.

RARA AVIS

Is located in Dover township, Athens county, at a town known as Chauncey on the K. & M. R. R., and is owned by the Chauncy & Beaumont Coal Co. Wm. Job is superintendent, and Benj. Hill mine boss. This is a new mine opened into the No. 6, or Hocking Valley vein. The coal is reached by means of a shaft, and although a number of faults or horsebacks have been encountered, the mine was in fair condition. It is a machine mine and is equipped with many of the modern improvements. A picking table on which the coal is dumped for the purpose of cleaning it is an innovation in mining coal in this region. It is believed that if this table had sufficient length that it would be the means of removing many of the impurities which otherwise finds its way to the market. This mine was visited on November 21st, 1898, in company with L. W. Tull, District Mine Inspector.

NO. 16

Is located at Hollister, Trimble township, Athens county, and is owned by the Courtright Coal Co. D. C. Thomas is superintendent, and James Wheatley is mine boss. This mine was visited in company with L. W. Hull on November 22nd, 1898. It is ventilated by means of a fan which was forcing a current of 49,700 feet per minute in to the mine. Of this 27,500 feet was carried to the north side, and 22,200 to the south side. At the face of the 5th and 6th west entries on the south side there were 5,040 feet of air passing; on the 5th and 6th east entries on the south side there were 8,280 feet of air; at the intake on the 7th and 8th east entries on the north side there were 15,500 feet; and, at the face of these entries there were 12,452 feet of air passing; at the last cut through on the straight entry on the north side there were 8,970 feet of air, and on the main east entry 8,085 feet passing. The roads and entries were in excellent condition, and with the exception of a few rooms that were driven beyond the lawful distance for breakthroughs, the mine was in good condition.

PHOENIX NO. 2

This mine is located near Glouster in Trimble township, Athens county, and is owned by the Phoenix Coal Co. Lewis Jones is superintendent, and his son John Jones, mine boss. It was inspected on November 23rd, in company with L. W. Hull. This mine is one of the best in the Sunday Creek Valley, and has been kept in comparatively good condition. At the time of the visit there were 37,862 feet of air passing into the mine of which 18,525 feet went into the south side, and 19,337 was carried to the north side. At the face of the 5th and 6th entries on the north side there were 7,890 feet of air passing; at the face of the 1st and 2nd left entries on the north side there were 10,800 feet; at the face of the 5th and 6th east entries on the south side there were 6,100 feet; on entries 3, 4, 5 and 6 it was found that the rooms were without the

requisite breakthroughs and those that had been driven were made at irregular intervals, and were all uneven in size. To remedy this Mr. Hull and I marked off a large number and gave directions that they be made at once. Mr. Hull was left to see that the orders were executed. With this exception the mine was in its usual condition.

LOST RUN

Is located in Ward township, Hocking county, and is owned by the Lost Run Coal Co. Jos. Slater is superintendent, and Mr. Hurdy is bank boss. It was visited on February 20th and 21st, 1899. The mine had been running at irregular intervals for some time, and at the time of my visit was in a very unsatisfactory condition. In fact it was the worst mine inspected during my term of office. At the door between the 5th and 6th entries on the north side, the door did not fit the frame. Beneath it there was no sill and the air passing into the mine was allowed to waste around it to such a degree that at the head of the 5th and 6th entries there was no current perceptible. On each of Waldey's and Staley's entries there were two bad doors, and at the cross-over of Smith and Denig's entries there was no current. This was true at the last breakthroughs in these entries as well as the Weldy's and Staley's entries. At the parting of the west 5th entry there were 1925 feet of current moving. This diminished to such an extent that on the main entry inside of the bull wheel there were but 1,440 feet. With a little repairing that was ordered at once, on the door at the 5th and 6th west entries, this was increased in half an hour to 5,040 feet. There was not a door in the mine, and not a stopping was seen but what was losing a large portion of the current. Orders were given to at once proceed with repairs, and on the next day where it had been impossible to get a register the day before there were found 6,900, 9,240, 4,440, 3,360, and 5,040 respectively. At the point inside the bull wheel where there was the day previous but 1,440 feet of air, the amount had increased until the current registered 11,050 feet. At the turn in the main entry there were 5,040 feet which had been increased to 22,715 feet on the return current. Near the pump it was found that the fan was capable of producing 28,980 feet. This was accomplished by the use of ten cars of mud, and a few braces and pieces of 2x4 timber.

NO. 7

Is located at Blatchford, in Hocking county, and is operated by the New Pittsburg Coal Co. J. R. Birkbeck has entire supervision, and G. W. Butts acts as mine boss. This mine employs one hundred and twenty-two loaders, twenty-one machine men, eighteen inside and ten outside men. This mine was inspected on March 1st, 1899, and found in bad condition. On the main south entries two doors were found in bad condition, being hung the wrong way, which was true of nearly every door on the main south entry. On the 7th and 8th west entries on the

south there were no sills under the doors which were allowed to stand partially open. The result was that on the west 8th entry there were 2,160 feet of air while on the 5th and 6th west on the south there were 3,100 feet. In the return on the north 5th west entry there were 7,600 feet. A general repairing of the false work of the mine was ordered at once.

NO. 9.

Is located near Blatchford in Hocking county, and is owned by the New Pittsburg Coal Co. It is under the supervision of J. R. Birkbeck. This mine was in fairly good condition. At the head of the main entry there were on the south 38,000 feet of air passing while on the north there were 6,000. But few men were engaged in this mine and they were employed in drawing pillars. The air that was in circulation was passing where they were employed.

JOBS NO. 3.

Is located in Hocking county and is owned by the Buckeye Coal and Railway Co. Edward Fluke is mine boss. One hundred and ninety miners and twenty-eight outside men are employed. This is one of the finest equipped mines in the Hocking Valley. The coal is drawn from the main double parting with a rope 6,000 feet in length. This parting is supplied with coal by means of an electric motor which runs to two gathering stations. The main parting is 524 feet in length and is fourteen feet in width, and has three tracks laid with thirty-five pound rails. Lighted as it is with electricity it presents a very inviting appearance. This mine was found in excellent condition, no criticisms being necessary.

MILTON NO. 1.

Is located near Wellston in Jackson county, and is owned by the Milton Coal Co. D. Ritchie is superintendent and Geo. W. Davis is ban boss. This mine was inspected on March 14th, 1899. The doors of the east entry on the main and also on one of the west end of the Thomas entry were in bad condition. Many breakthroughs were too small and a few were filled with dirt. At the head of the main entry there were 7,100 feet of air passing, and 8,000 at the head of the Thomas entry near the parting. Directions were also given to take down a few pieces of loose stone along the entry. Otherwise the mine was in good condition.

MILTON NO. 2.

Is located near Wellston, Jackson county, and is also owned by the Milton Coal Co. David E. Ritchie is superintendent, and W. B. Montgomery is mine boss. A bad door was found at the mouth of the first east entry, and one of the doors in the main entry required a strip of

brattice cloth at the bottom. A number of the breakthroughs were obstructed with loose dirt. Near the head of the straight east entry there were found 11,400 feet of air; near the face of the first east there were 5,000 feet, and on the south 5,680; at the head of the second east entry there were 3,680 feet of air. In a general way the mine was in a very satisfactory condition.

FLUHART NO. 2.

Is located near Wellston, and is owned by the Fluhart Coal Co. This mine was visited on March 15th and has been subject to a heavy squeeze which cut off the main supply of coal from the openings, thus destroying the ventilation as well as the entries. The main visit was for the purpose of advice as to the best method of driving through the fault which they were about to begin. At the time of inspection the appearances were decidedly discouraging as to the resumption of work.

CENTER VALLEY OR SUPERIOR NO. 2.

Is located in Block township, Jackson county, and is owned by the Superior Coal Co. H. C. Murfin is superintendent, and Dan Davis is mine boss. It was visited on March 16th, 1899. On the main north entry near the bottom of shaft there were 7,300 feet of air passing. This maintained at the head of the 2nd west entry while at the head of the 3rd west entry it had diminished to 2,000 feet. There were forty men employed ahead of this door. This leakage was due to two breakthroughs standing open together with obstructions in the air way. Two rooms were being driven between the second and third west entries for the purpose of ventilation, and they were granted until the 20th to complete this work. The remainder of this mine was in a satisfactory condition.

FLUHART NO. 3.

Is located in Jackson county, and is owned by the Fluhart Coal Co. Theo. Fluhart is superintendent, and T. B. Patrick is mine boss. This mine was inspected on March 17th, 1899, and at the time it was not in active operation. There were some obstructions around the foot of the air shaft which were ordered removed. The general circulation was fairly maintained. The passage to the escapement way had been allowed to fall in, and this was ordered cleared up at once, and the stairway repaired.

NO. 9.

Is located in Jackson county, and is owned by the New Pittsburg Coal Co. J. R. Birkbeck is superintendent. I was called to this mine to investigate the death of John Fontillo a native Slavonian. He had been engaged in carrying some gas pipe from an abandoned entry to the main entry where it was loaded onto a mine car. After completing his work for some reason he returned and penetrated the entry to a

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ANACAL REPORT

He greater distance than heretofore, and not returning the men with whom he was at work instituted a search for him when he was discovered lying against an electric wire stretched across the neck of the room. When found he was dead. A full account will be found in the inquest.

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Is located in Center township, Guernsey county, and is owned by the Loomis Moss & Co., Akron Ohio. Harry Moss is superintendent, and Wm. Rigby, mine boss. This is a new mine, the coal being reached by means of a slope. Sixty miners, fourteen day men, and six outside men are employed. The mine is in good condition, and was well conducted. There was some dissatisfaction in regard to the scales; the writer not being able to detect the error caused a representative of the maker to give an examination, which he did and pronounced them as weighing correctly.

CAWTHORNE

Is located in Hocking county, and is owned by the New Pittsburg Coal Co., who have recently acquired possession. The mine was idle at the time of inspection. The roof of the main and the left face entries and a pair of butt entries which parallel the mine were examined as to their safety. The roof is formed of fireclay and soapstone badly broken and filled with slips. Much of this roof had fallen to quite a height, and that which was not removed was secured with timbers. The last ten or twelve rooms on the second butt entries were found to have fallen in before they were even widened. These entries are very dangerous and will require a great deal of timber, and it very carefully set. It is quite doubtful if the coal recovered will warrant expenses necessary to make the mining safe.

CONSOL

Is located near Consol, and is owned by the New Pittsburg Coal Co. It was visited on June 27th. This mine was idle for a number of years, and was recently started up. The ventilation was very weak owing to bad stoppings, and a poor door at the mouth of the mainway. The fan is of ancient pattern and required a general over-hauling. When this is done, and the doors and stoppings that have become rotten are replaced, the mine will be in fair condition, as it is splendidly laid out and has an excellent quality of coal.

HAWKS HILL

Is located in Athens county, and is owned by the Hocking Valley Coal Co. Mill Robb is superintendent, and N. A. Williams is mine boss. This mine was visited June 28th. The operation of this mine is greatly impeded owing to the roof being of shell rock and fire clay which comes down close to the coal. This resulted in the death of a large number

of miners during the life of the mine. The roof of the main entry has been timbered and lagged most of the way and even then it has fallen to a greater height in some places. The ventilation and general condition of the mine is quite satisfactory, but great care and enormous expense are required to securely support the roof.

NEW SHAFT

Is located at Salineville, Columbiana county, and is owned by the Big Vein Coal Co. John Morris, Jr., is superintendent, and Samuel Madison is mine boss. This mine was inspected on September 12th, there being some fear that the water was flowing in from the old shaft mine. An examination proved that the electric pump had permitted the water to raise in the abandoned portions to such a degree as to prevent the men from passing out the escapement way, thus necessitating their riding in and out in the cars. A large amount of dirt and refuse had been permitted to accumulate on the sides of the entries which made it unsafe to ride in the cars as it was liable to roll on the tracks and cause an accident. This was ordered cleaned up at once, and all possible haste made in repairing the pump. In the meantime a close watch was to be kept on the water, and if it appeared to be rising the men were to be withdrawn and the mine suspended.

KNOWLES, TAYLOR & ANDERSON

Is located in Columbiana county, and is owned by The Knowles, Taylor & Anderson Co. T. E. Young is mine boss. This is a clay mine. It was visited September 13th. The product is used by the company for the manufacture of sewer pipes, but was suspended at the time of my visit, owing to its being filled with water. This was caused by the city building a culvert under the street near the mouth of the slope. The heavy rain caused it to overflow thus flooding the mine, rendering it **unsafe for operation during wet weather**, or during the approach of a severe storm. This mine should not be operated until there are available means of escape provided.

GREENAMYER SHAFT

Is located in Greene township, Mahoning county, and is owned by John Howells of Salem. Five miners and two day men are employed. This mine was inspected on September 16th. A fire at the head of the main entry had caused its suspension. As the mine was provided with natural ventilation the air current reversed frequently, thus preventing all approach for the purpose of extinguishing it. At the time of my visit a fan was being erected at the top of the main shaft, which when completed will form a positive current and permit the owner to close in the fire and thus allow it to extinguish.

NO. 3.

Is located in Salem township, Columbiana county, and is owned by the Cherry Valley Iron Works. T. R. Lewis is superintendent, and Dan McGrath is mine boss. When in operation this mine employs one hundred miners, 11 inside and 10 outside day men. Much complaint has been made of the ventilation of this mine which owing to the irregularity of the coal make it difficult to maintain a uniform current of air. Although there were 28,000 feet of air passing into the mine, and an examination proved that the fan was of ample size, the chief difficulty was due to the want of sufficient boiler power, there being but two twenty foot boilers provided. A request was made for a new boiler or that the fan be driven by a gasoline engine independently of the steam plant, and directions were also given that no more men be employed until the ventilation was satisfactory.

REPORT OF SAMUEL LLEWELLYN.

Inspector of the First District from November 15, 1898 to November 15, 1899.

R. M. Haseltine, Chief Inspector of Mines, Columbus, Ohio.

DEAR SIR:—I have the honor of submitting to you the Annual Report of the Mines of the First District for the year ending November 15, 1899. The year closes with a great rush of business, and all employed in and about the mines are buoyant and hopeful, and the district will easily distance any other district in the output.

My thanks are due to the miners and operators for the courteous treatment I have received in all my intercourse with them. I feel myself indebted to you for your instructions and assistance. I am

Respectfully,

SAMUEL LLEWELLYN,
Inspector First District.

HOCKING COUNTY.

LOST RUN

located on the Monday Branch of the C. H. V. & T. R. R., and is operated by the Buckeye Coal and Railway Co. John M. Roan is the superintendent, and Lou McDaniel is bank boss. It is a drift opening the No. 6 seam of coal, which at this place is from five to ten feet thickness. It is worked on the double entry system, and has fanilation. Two hundred and three miners and sixty-three day hands employed. This mine, after a suspension of some time, resumed operation in July under the management of a new firm. In the beginning met with deficient ventilation caused by the exhaust fan drawing a major part of its supply from an abandoned section of the mine where a number of surface breaks occurred. To thoroughly enclose this section was next in order. At first it was inefficiently executed. Later a fresh inlet was provided at the face of the 8th west entry, and a pass made through to No. three, north entry, which improved conditions generally. Brattices and doors in various parts of the mine are required to be made airtight. The fan is still drawing extraneous air from the east side of the mine. The management seem to be ready to do all that is needed to provide good ventilation and drainage. It is probable that a new and more powerful fan will be provided to give complete satisfaction. They have been successful in securing a large output of coal during the season.

MORRIS NO. 1

Is located at Sand Run on the Monday branch of the C. H. V. & T. R. R., and is operated by the Buckeye Coal and Railway Co. J. H. Winder is the superintendent and Adam Lafferty is mine boss. It is a drift opening into No. 6 seam of coal which is here from three to seven feet in thickness. It is operated on the double entry system, and has ample fan ventilation. One hundred miners and twenty-eight day hands were employed. The east side of the mine is exhausted. The west side is faulty with basins of good coal sandwiched between the faults. The greater part of the coal is cut by mining machinery, some pillar work being done by the pick. At the head of the west entries the roof for hundreds of feet is fire clay, which is of a very dangerous and treacherous character. It is not likely they will succeed in excavating the coal. Conditions here are good, and the mine fairly cared for. A new opening has been made across the valley, and entries have been driven south and west. The south entries have been connected with Mine No. 19 on the south. The west entries will soon make the same connection. No room work has been engaged in at this time.

MORRIS NO. 2.

Is located at Jobs on the Brush Fork branch of the C. H. V. & T. R. R., and is operated by the Buckeye Coal and Railway Co. J. H. Winder is superintendent, and Edward Fluke is mine boss, with Wm. Powers as assistant mine boss. It is a drift opening into the No. 6 seam of coal which is here from six to eight feet in thickness. It is conducted on the double entry system and has fan ventilation. Two hundred and fifty miners and seventy day hands are employed. The ventilating current was very fairly distributed, but unless the fan was kept at its maximum capacity it would fall below the legal requirement, otherwise the mine is kept in good condition.

MORRIS NO. 3

Is located across the valley from No. 2, the coal being brought to the same hopper, and is under the same management with Joseph Smith as assistant mine boss. It is also a drift opening into the No. 6 seam of coal which is here from three to eight feet in thickness. It is operated on the double entry system and has fan ventilation. Two hundred and forty-six miners and seventy four day hands find employment at this mine. The rope haulage extends one mile from the hopper and an electric motor is used to bring the coal to the rope switch from the three points each of which is a thousand feet distant. A good current of air courses through this mine. The air where the pillar work was being done was deficient, but at present conditions are fair.

NO. 29

Is located at Murray City on the Snow Fork branch of the C. H. V. & T. R. R., and is operated by the Greendale Furnace Co. J. W. Miskell is the superintendent and mine boss. It is a drift opening into the No. 6 seam of coal which at this point varies in thickness from six to eight feet. It is worked on the double entry system and uses a fan as a mode of ventilation, but during the year they have been drawing the room and entry pillars, and a furnace has been installed in the place of the fan. Twenty-five miners and five day hands were employed at the close of the year. Much of the territory north and west is being drawn at present more or less quite thoroughly. There are many pillars south and southwest for future operations. Conditions have been fair during the entire season.

NO. 15

Is located at Sand Run on the Monday branch of the C. H. V. & T. R. R., and is operated by the Jacoby Coal Co. George Jacoby is superintendent and Joseph Green, mine boss. It is a drift opening into the No. 6 seam of coal which at this point is from six to eight feet in thickness. It is worked on the double entry system and has fan ventilation. Fifty-seven miners and sixteen day hands are employed. The coal is cut by mining machines operated by compressed air from the compressors at the mouth of Mine No. 19. The fan is located in the airway of the main south entry and is also operated by compressed air. The fan is small and in order to furnish the legal requirements must be kept at its maximum speed. During the summer the mine was practically idle for lack of trade, but has been a steady producer since August. Conditions here have been fair.

COALGATE

Is located at the terminus of the Snow Fork branch of the C. H. V. & T. R. R., and is operated by the Somers Coal Co. Z. Williams is superintendent and Anthony Riggs, mine boss. It is a drift opening into the No. 6 seam of coal which is here from five to ten feet in thickness. It is worked on the double entry system and has fan ventilation. One hundred and twenty-one miners and thirty-one day hands are employed. The area of mineable coal has been materially lessened by the prevalence of a fault which almost surrounds the mine.

The ventilation recently has been fair excepting some ten or twelve rooms on the third west entry north of the main west entry. In order to improve the ventilation in these rooms two check doors have been placed on the entry and breakthroughs to the head of the rooms well closed. During the year doors and brattices have been required and also defective ones improved and corrected. On the 25th of January, while cutting a room on the 6th west entry a slip was cut into by the machine and a large mass of coal fell out upon the machine and struck

Stephen B. Hise, and severely injured him, from the effects of which he died February 10.

NEW PITTSBURG NO. 1

Is located at Blatchford on the Brush Fork branch of the C. H. V. & T. R. R., and is operated by the New Pittsburg Coal Co. James R. Birkbeck is the superintendent and George Butts is mine boss. It is a drift opening into the No. 6 seam of coal which is here from six to seven feet in thickness. It is conducted on the double entry system and has fan ventilation. This mine was formerly known as No. 7. One hundred and nineteen miners and thirty-five day hands find employment at this mine. The ventilation of this mine has not been satisfactory at times caused by the lack of attention to the brattices between the various entries. At times a good circulation would be found.

NEW PITTSBURG NO. 2 (Formerly No. 8)

Is located on the north side of the valley at the terminus of the Brush Fork branch of the C. H. V. & T. R. R., and is operated by the New Pittsburg Coal Co. James R. Birkbeck is the superintendent, and Wm. Embleton and James Johnson were successively mine bosses. It is a drift opening into the No. 6 seam of coal which is here from six to seven feet in thickness. It is conducted on the double entry system and has fan ventilation. One hundred and thirteen miners and twenty-eight day hands are employed. This mine is approaching exhaustion. A few rooms on the 7th west, and 5th and 6th east entries are still yielding their quota. Most of the work, however, is in drawing pillars in rooms and entries both in No. 8 proper and on the main entry of the No. 6 mine. Of late there has been some carelessness about the ventilation. The fan was kept up to its maximum speed and in some instances by deterioration of the brattices the current was dissipated before reaching the working faces. These defects were corrected upon the request of the inspector.

NEW PITTSBURG NO. 2. (Formerly No. 9)

Is located at the south side of the valley opposite the No. 8 mine and is under the same management. Wm. Embleton is mine boss. It is a drift opening into the No. 6 seam of coal which at this point is from six to seven feet in thickness. It has been worked on the double entry system, and has fan ventilation. Ninety-six miners and twenty-eight day hands were employed. This mine is also approaching exhaustion, nothing remaining excepting the room and entry pillars. The ventilation was permitted to become sluggish and they were required to prevent leaks and to keep the current flowing. On February 7th Charles Bland, who was working in room No. 3 on the third east entry on the north side, was killed by a fall of roof, while he was loading his last car, a piece of draw slate or bastard cannel falling upon him and he was soon after

wards found on the spot dead. In shooting the coal the holes had evidently been bored too high, thus shattering the roof. The testimony in the case developed that he had been warned of its being dangerous. John Fontilla was found dead on the 19th of June in the suspended third east entry. When found he was lying with his breast across an electric wire. He was working day work, and had been sent up the entry to procure a piece of pipe, and as he delayed returning his colleagues sought and found him. No evidences of a struggle were to be found, excepting upon his breast which was slightly burned by coming in contact with the wire. Further investigation showed that the lower wire was severed some fifty feet to the rear. It remains a mystery how he came to his death.

NEW PITTSBURG NO. 3.

Is located at Consol on the Brush Fork branch of the C. H. V. & T. R. R., and is operated by the New Pittsburgh Coal Co. James R. Birkbeck is the superintendent and Wm. Slater is mine boss. It is a drift opening into the No. 6 seam of coal which is here about six feet in thickness. They follow the double entry system and ventilate by a fan. One hundred and fifty miners and thirty day men were employed. After a suspension of nearly five years, work was resumed here in April. The work of preparing the mine for operation was not efficiently executed. The exhaust fan was largely supplied with air from the abandoned north east section of the mine where surface openings exist. They were required to effectually close all openings into this section, and to thoroughly overhaul all brattices in the mine. It was necessary to repeat this frequently. On September 27th I found the mine in fair condition. On September 15th I tested the scales and found them accurate.

NEW PITTSBURG NO. 5

Is located at Buchtel on the Snow Fork branch of the C. H. V. & T. R. R., and is operated by the New Pittsburgh Coal Co. Henry Johnson was superintendent and mine boss. It is a drift opening into the No. 6 seam of coal which is here about five and one-half feet in thickness. It is worked on the double entry system and has fan ventilation. At the close of the year there were one hundred miners and twenty-five day hands employed. The operations of this mine were formerly in Athens County, but the present operations are located in Hocking county as the coal territory is located there. It has been equipped with electric appliances and rope haulage. Thus far conditions are fair.

NEW PITTSBURG NO. 6 (Cawthorne)

Is located on the Monday branch of the C. H. V. & T. R. R., and is operated by the New Pittsburgh Coal Co. James R. Birkbeck is superintendent, and John Murphy is bank boss. They are drift mines in the

east and west hills into the No. 6 seam where the coal is from six to eight feet in thickness. They are worked on the double entry system, and have fan ventilation. One hundred and thirty-four miners and thirty-three day hands are employed. The present firm took possession in June. The furnace on the west side proving inadequate, a fan operated by electricity was installed. The north entry and its tributaries were abandoned because the tender roof made it unavailable to work machines. Carelessness in keeping the brattices intact caused the ventilation to become sluggish at times, which was ordered remedied. On September 21st, I tested the scales and found them to be correct.

SNAKE HOLLOW

Is situated on the Monday branch of the C. H. V. & T. R. R., and is operated by C. L. Poston & Co. C. Millinger is the superintendent and mine boss. It is a drift opening into the No. 6 seam of coal which is here from six to eight feet in thickness. It is operated on the double entry system and is ventilated by fans. One hundred and seventy-six miners and thirty-five day hands find employment at this mine. The coal is cut by machines, and rope haulage is used as a means to convey the coal to the tippie. During the year the first opening became exhausted, and another opening was made on the south side of the valley. Conditions here are favorable.

BEATTIE BROTHERS

Is located near Buchtel on the Snow Fork branch of the C. H. V. & T. R. R., and is operated by the Beattie Bros. It is a drift opening into the No. 6 seam, the coal being six feet in thickness. James Beattie has the mine in charge. It is worked on the single entry and cut-off system and is ventilated by natural pressure. Conditions were very moderate here, and they were requested to reopen the closed airway and to keep it open. Eleven miners and four day men were employed.

BLACK DIAMOND.

Is located near Haydenville and is operated by the Haydenville Mining and Manufacturing Co. J. W. Jones is superintendent, and E. Lehman is mine boss. This is a drift opening into the No. 6 seam of coal which at this point is from three to six feet in thickness. It is conducted on the single entry and cut-off system, and is ventilated by natural pressure. Sixteen miners and five day hands were employed. The east side of the tunnel has been abandoned. On the west side an entry has been driven across the faces of rooms that were opened twenty-five years ago. At the east end of the entry there was an opening to the surface. In September they had two hundred feet to drive to the west surface opening. I ordered the north door of the tunnel closed. Conditions were fair here.

MINES EMPLOYING LESS THAN TEN MEN.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	Number of Men.	P. O. Address.
er	Drift	John Kistler	7	Longstreth.
is	"	W. E. Evans.....	2	Carbon Hill.
.....	"	Dennis Coe	2	"
a	"	J. M. Lama.....	3	Nelsonville.
CLAY MINES.				
en Allen	Drift	Haydenville M. & M. Co.	7	Haydenville.
on Furnace	"	Columbus B. & T. Co..	12	Union Furnace.

JACKSON COUNTY.

.ETNA AND IRON VALLEY.

Have suspended during the year.

WAINWRIGHT

located east of Wellston on a branch of the C. H. & D. R. R., and operated by the Wainwright Coal Co. George Harrison is superintendent, and William Harrison is mine boss. It is a shaft opening twenty-five feet deep into the No. 2 seam of coal which is here from two hundred feet in thickness. It is operated on the double entry system and has fan ventilation. Eighty miners and thirty-seven day hands are employed here. The ventilation of this mine has not been all that could be desired at all times. There have been traces of marsh gas on the north and west entries, and efforts have been made with some success, to increase the current at these points. The cut-off system which has been in operation at this mine is responsible for much of the reduction of the current. Happily they are adopting double entries and better conditions will prevail. The south side of the mine has been closed for some months. On February 3rd, May 16th, and June 1st, I tested the scales, and found them weighing accurately each time, but there was some dissatisfaction with the scales because at times at small moves of a partially loaded car there was a loss in weight from twenty to ninety pounds. The scales were thoroughly cleaned, the weights rubbed off, and by some minor adjustments they proved more reliable.

FLUHART NO. I

located in south Wellston on the B. & O. S. W., and the C. H. V. R.R., and is operated by the Fluhart Coal Co. T. J. Fluhart is

superintendent, and David Powell is mine boss. It is a shaft eighty feet deep into the No. 2 seam of coal which is from thirty-three to forty-eight inches in thickness. The double entry system is followed and a fan is used as a mode of ventilation. One hundred and forty-two miners and fifty-two day hands are employed. There has been improvement in the ventilation which was sluggish in the earlier part of the year, occasioning, in one instance, the removal of the men from the east entry. On the northwest they have secured an outlet at the face of the entry into the Comet mine, materially enlarging the current. On the 26th of July, George W. Leffler was found dead in his room, covered with coal that evidently came from a shot fired in an adjoining room, dislodging a ton of coal with such violence as to sweep it across the room to the other rib. The shot was fired without the usual warning, and was the climax of unskillful and unworkmanlike mining.

FLUHART NO. 2

Is situated southeast of Wellston on the C. H. & D. and C. H. V. & T. Railways, and is operated by the Fluhart Coal Co. Theo. J. Fluhart is the superintendent, and J. J. Donahue, J. P. Harrigan and Victor Sullivan were successively appointed mine bosses.

It is a shaft one hundred and sixty-seven feet deep into the No. 2 seam of coal, which is here from thirty-three to thirty-eight inches in thickness. It is worked on the double entry plan, and has fan ventilation. From eighty-five to sixty miners, and thirty-nine day hands are employed. During the year the main east entry has been opened through the crush. The airway was changed from the south side of the main entry to the north side of the entry, and an old entry on the west side opened south to the fan, an air bridge being used to cross the main entry but it failed to carry the current to the working faces. Then the fan was brought from the top of the air shaft and placed in the airway near the bottom of the main shaft. This has not been a complete success, as the enclosure was not perfect. By making the airway tight and enlarging the way to the airshaft they can produce an abundance of air. Rope haulage has been extended thirteen hundred feet making a total of four thousand feet. The imperfect ventilation will limit the number of miners employed. The west side is to be operated from the No. 1 mine.

FLUHART NO. 3

Is located east of Wellston on the B. & O. S. W. Ry., and is operated by the Fluhart Coal Co. Theo. J. Fluhart is superintendent and T. B. Patrick is mine boss. The shaft is eighty feet deep into the No. 2 seam of coal, which at this point varies in thickness from two to four feet. It is worked on the double entry plan and has fan ventilation. Ninety miners and twenty-six day hands were employed during the busy season.

and thirty miners and ten day hands were employed during the summer. It has required many visits and repeated instructions to have the current of air brought to the face of the southeast entries. The airway was entirely re-opened and confined and the escapement ways on the west side shut-off, as well as many minor improvements made to secure the end in view. This section of the mine will not last much longer. The other sections are principally prospecting entries with no satisfactory results as yet.

Wellston No. 1 and Wellston No. 2, located in Wellston were abandoned during the year.

WELLSTON NO. 3.

Is located west of Wellston on a switch of the C. H. & D. R. R., and is operated by the Wellston Coal Co. T. J. Morgan is superintendent and Robert Pope was mine boss. It is a shaft opening 87 feet deep into the No. 2 seam of coal which is here from three to four feet in thickness. It is worked on the double entry system, and has fan ventilation. One hundred and seventy miners and fifty-one day hands are employed. The ventilation here was not satisfactory. The loss of air through defective brattices to the east although renewed frequently caused a sluggish current of air to course through the west entries on the south side. At the close of the year preparations are being made to install a fan operated by compressed air at the mouth of the 5th west entry. When this has been accomplished the results are expected to be improved. There is a large area of tender roof on the fourth and fifth east, and fifth west entries, which makes it very difficult to work many of the rooms. A large force is kept cleaning slate. George Littlejohn, employed as a trimmer, was injured while dropping a partially loaded car on December 17, 1898. By some mischance he was caught between the drawbars of the two cars from the effects of which he died on December 28, 1898. On January 8, 1899, Dennis Trainer, a slate man, was killed by a fall of slate. They had been shooting slate in the neck of a room, and were engaged in throwing the debris out of the way, when slate that had been loosened by the kicking back of one of the shots, fell on him, killing him instantly.

MILTON NO. 1

Is located on the B. & O. S. W., and the C. H. V. & T. Railways, and is operated by the Milton Coal Co. D. E. Ritchie is superintendent and George Davis is mine boss. It is worked on the double entry system and has fan ventilation. One hundred and eight miners and thirty day hands are employed, part of the year the number lessening toward the close. The workable area of the mine is diminishing. On the east side the coal is cut by machines. On the west side the coal is mined by pick men. The head of the east entries has been denuded of the coal, some blocks being taken out that were reserved. On the west side they have

penetrated into the Wellston No. 2 mine, and are working a block or two of coal left there by that management. The ventilation has at times been sluggish, especially on the southwest entry. A remedy for this was required.

MILTON NO. 2

Adjoins No. 1, and is operated by the same firm, D. E. Ritchie being superintendent and Wm. Montgomery mine boss. It is a shaft opening seventy-six feet deep into the No. 2 seam of coal which is here from three to four feet in thickness. It is worked on the double entry system, and has fan ventilation. The ventilation has been sluggish at times. Doors and brattices were frequently required to be overhauled. Toward the close of the year connection was made with the new mine Milton No. 3, from which they received about twelve thousand feet of current. This improved conditions. On the fifth and sixth west entries pick men were employed. As long as they received their air current from Fluhart No. 1, there was fair ventilation, but recently this has been cut off and the supply comes from the east side, with indifferent results caused by choking of the outlet. On March 11th, Stephen Wangler and Rees Talbert were loading coal in a room on the Thomas entry when a fall of two inch draw slate covered them, injuring Wangler but Talbert was found dead under the slate, his head resting on the blade of the shovel which inflicted the fatal wound. They intended taking the slate roof down but delayed too long. There were no supporters under it.

MILTON NO. 3

Is located southeast of Milton No. 2, on the B. & O. S. W., C. H. & D., and the C. H. V. & T Railways, and is operated by the Milton Coal Co. D. E. Ritchie is superintendent, and Henry Shires is mine boss. It is a shaft opening one hundred feet deep into the No. 2 seam of coal which is here from three to four feet in thickness. It is a new mine beginning operations at the close of the summer. The coal is cut by machines operated by electricity. The buildings and appliances for handling the coal are substantial and convenient. An air shaft has been sunk and will soon be in use with the fan on the top thereof. At the close of the year there were seventy-five miners and twenty-three day hands employed. Milton No. 2 mine is to be supplied with a portion of the air current. Conditions are good.

SUPERIOR NO. 1

Is located west of Wellston on the O. S. and the C. H. & D. Railway, and is operated by the Superior Coal Co. H. C. Murphin is the superintendent, and W. J. Davis is the mine boss. This is a shaft opening one hundred feet deep into the No. 2 seam of coal, which is here from thirty-three to forty-four inches in thickness. It is worked on the double entry system and has fan ventilation. During the year the two west ar

north entries have been reopened through the crush experienced last year. The mine is fairly ventilated and is generally found in good order.

SUPERIOR NO. 2

Adjoins No. 1, on the east and on the same lines of railway and is under the same superintendent, with Daniel J. Davis as mine boss. It is a shaft eighty-five feet deep into the No. 2 seam of coal which is here from thirty-two to forty-five inches in thickness. It is worked on the double entry system and has fan ventilation. One hundred and ten miners and forty-eight day hands were employed. Early in the year the ventilation on the north side was sluggish. The current came from mine No. 1, but because of the deficient airways it was conducted along the crowded haulway. A passage was made to the second west entry through the rooms above the fault, when a sufficient ventilation was secured. They were slow in carrying out this measure, causing some friction with the Department. Since the second and fourth west entries have been driven through into entries coming from Superior No. 3 mine, it is a question of but a short time when the mine will be exhausted. On the south side the ventilation is not satisfactory. It was found necessary to carry the current from the fan to the workings along the haulage way, and it required continued work on the brattices to keep the current intact. On March 9, 1899, Alvah Thomas Wooten was killed by a fall of slate in his room. The roof was full of slips, and was very tender in character. They had posted the room well as they thought. He and his father had been working most of the day in another room. Later the day they came to prepare a shot in this room. The father preceded the boy and saw there was danger, and told the boy to stay back. It was too late, as the thick wedge of slate fell out and crushed him.

On October 9th, the scales on the O. S., and the C. H. & D. R. R. ticks were tested and found accurate.

SUPERIOR NO. 3

located northwest of Wellston on a switch from the B. & O. S. W. R. R. It is operated by the Superior Coal Co. O. B. Gould is superintendent, and John M. James is mine boss. It is a shaft forty-seven feet deep into No. 2 seam of coal, which is here from thirty-four to fifty-five inches in thickness. It is operated on the double entry system and has fan ventilation. During the summer one hundred miners were employed and during the winter two hundred miners and thirty-five day hands are employed at this mine. The mine is generally found to be in moderate condition.

SUPERIOR NO. 4

located on the Ironton Junction of the C. H. & D. R. R., and is operated by the Superior Coal Co. O. B. Gould is superintendent and F. M.

Hudson is mine boss. It is a shaft opening seventy-seven feet down into No. 2 seam of coal, which is here from thirty to forty inches thickness. It is worked on the double entry system, and has fan ventilation. Sixty miners and twenty-eight day hands were employed. Sulphurish ventilation is of frequent occurrence here, and the repairing of brattices is called for at each visit. At the close of the year but one entry is worked on the south side of the third and fourth west entries.

SUPERIOR NO. 5

Is located at Coalton on the C. H. & D. R. R., and is operated by Superior Coal Co. George Wheldon is superintendent and Evan T. Davidson is the mine boss. It is a drift opening into the No. 2 seam of coal which varies in thickness from six to forty inches.

It is conducted on the single entry system and has fan and furnace ventilation. Eighty-one miners, and forty day hands were employed. The north side of the mine was closed down during the year. The first south west entry went to the surface in a ravine. Another opening was made on the other side of the hollow. At the close of the year an airshaft had been sunk and a good furnace built. The coal in the new opening appears to be getting thinner. The prospect for continuation of output is not promising.

SUPERIOR NO. 6

Is located east of Wellston on the C. H. & D. and the B. & O. S. W. R. Railways, and is operated by the Superior Coal Co. O. B. Gould is the superintendent and Wm. Cooker is the mine boss. It is a shaft opening into the No. 2 seam of coal which is here from thirty-four to forty inches in thickness. It is worked on the double entry system and has fan ventilation. Seventy-eight miners and thirty-nine day hands were employed. A few men are engaged in drawing the pillars on north side. The southeast entries are still very wet. The gasoline pump is operated day and night to make it possible to mine the coal. It is said that a shaft will be sunk farther east to further extend the workings. The mine is generally found to be fairly well ventilated.

ELIZA

Is located near Wellston on the B. & O. S. W. R. R., and is operated by the Eliza Coal Co. Charles Wiseman is in charge. It is a shaft seven to five feet deep into the No. 2 seam of coal which is here from twenty to forty inches in thickness. Eighteen miners and nine day hands were employed. It is worked on the cut-off system, and has fan ventilation. The care for the ventilation has not been as good of late as formerly. Leaks in the long line of airways were pointed out on my several visits and while they sought to close them, they would reappear at subsequent visits. As the output is small it is likely to last for some time yet.

GARFIELD

Is situated at Garfield on the C. H. & D. R. R., and is operated by the Garfield Coal Co. J. S. Wilson is the superintendent, and El. Rhodes is mine boss. It is a drift opening into the No. 2 seam of coal which is from fourteen to thirty inches in thickness. It is worked on the single entry system and has fan ventilation. Twenty miners and six day hands were employed. Conditions at this mine were moderate.

HIPPEL

Is located at Coalton on the Ohio Southern Railway and is operated by the Hippel Coal Co. W. D. Hippel is the superintendent and James Gascoyne is mine boss. It is a slope opening into the No. 2 seam of coal which at this point is from twenty-five to thirty-six inches in thickness. It is worked on the single entry system and has fan ventilation. Seventeen miners and eight day men are employed. They are now engaged in drawing the pillars.

COMET

Is located west of Wellston on the O. S. Railway, and is operated by the Comet Coal Co. Peter Gallagher has entire charge. It is a shaft opening sixty-eight feet deep into the No. 2 seam of coal which is here from thirty-six to forty-two inches in thickness. It is operated on the double entry system, and is ventilated by a fan. In the early part of the year forty-two miners and twenty-two day hands were employed. In the early part of the year the ventilation was somewhat sluggish, caused by the air passage south being choked up by slate falls. Subsequently the current was conducted south on the main entry and an outlet was secured into the Fluhart No. 1, making the ventilation good. Much water is found here, and the pumps are kept constantly at work.

ALMA

Is located near Glenroy on the C. H. & D., and the O. S. Railways, and is operated by the Alma Coal Co. C. K. Davis is superintendent and George House is the mine boss. It is a shaft opening seventy-two feet deep into the No. 2 seam of coal, which at this point is from thirty-two to forty-two inches in thickness. It is conducted on the double entry system and uses fan ventilation. Sluggish ventilation has frequently occurred in the southwest entries, and the 1st west entries, on the north and south sides. Efforts to close the leaks into the Tom Corwin mine have been repeated, and some measure of relief secured. The diligence of the authorities in distributing the ventilation cannot be commended.

ADA NO. 2

Is located near Glenroy on the Ohio Southern Railway, and is operated by the Ada Coal Co. N. M. White is the superintendent, and J. C. Smith is the mine boss. This is a shaft opening one hundred and ten feet in depth into the No. 2 seam of coal, which is here from thirty-six to forty-three inches in thickness. It is operated on the double entry system, and has fan ventilation. One hundred and ten miners and thirty-seven day hands were employed. A crush occurred on the second east entry, on the east side during the year. The entry was subsequently reopened. With few exceptions, the ventilation was generally fair.

STANDARD

Is located in Glenroy on the O. S., and C. H. & D. Railways, and is operated by the Standard Coal Co. D. C. Jones is the superintendent and Daniel Jones is mine boss. It is a shaft opening eighty-five feet in depth into the No. 2 seam of coal, which varies in thickness from two to three and one-half feet. It is conducted on the single entry system and is ventilated by a fan. Forty-two miners and twenty-one day hands were employed. The south side is now reached by a haulage way from the first east entry on the north side. The ventilation in these two entries was fair. That on the northwest entry was deficient at times, the long line of air passages being clogged with falls entailing losses on the way. Remedial work was generally prompt. The integrity of the timbering on the north entry was kept up with vigilance. On October 24th the scales were tested and found one of the hangers rested on the cross beam when the burden was over nine hundred pounds. Correcting this the scales were accurate.

NORTHERN

Is located west of Glenroy on the O. S. and the C. H. & D. Railways, and is operated by the Northern Coal Co. D. C. Jones is superintendent, and Daniel Jones is the mine boss. This is a shaft opening forty-five feet in depth into the No. 2 seam of coal which is here from thirty to forty inches in thickness. It is conducted on the single entry system and is ventilated by an exhaust fan. Sixty miners and sixteen day hands were employed. The south side of the mine was practically exhausted during the year. A few men are now employed drawing the pillar. The north side after a suspension of six years, was reopened, three entries being in operation. The manway slope is the inlet for the current. With few exceptions the conditions are fair.

JONES & MORGAN NO. 3

Is located west of the Northern mine, on the O. S., and the C. H. & D. Railways, and is operated by Jones and Morgan. Moses Morgan is superintendent.

intendent and David Jones is the mine boss. This is a slope opening into the No. 2 seam of coal, which is here from thirty to thirty-inches in thickness. It is operated on the single entry system, has fan ventilation.

Fifty-five miners and nineteen day hands were employed. This mine always found in good condition.

EMMA NO. 1

located at Altoona on the O. S., and the C. H. & D. R. R., and is operated by the Emma Coal Co. Edwin Jones is superintendent and John Sullivan and Willis Schoonover successively mine bosses. It is a drift opening fifty feet in depth into the No. 2 seam of coal, which is here from thirty to forty inches. It has been operated on the single entry system, and has fan ventilation. Twenty miners and seventeen day hands were employed. The mine is nearing exhaustion, and the number of employees materially lessened. The conditions at this mine were moderate.

EMMA NO. 2

located north of No. 1 on a switch of the Ohio Southern Railway and operated by the Emma Coal Co. Edwin Jones is the superintendent, August Ruff was the mine boss. This is a shaft opening one hundred feet in depth, into the No. 2 seam of coal which is here from thirty to forty-four inches in thickness. It is conducted on the double entry system, and has fan ventilation. One hundred and thirty-five miners and thirty-five day hands were employed. Dissipation of the current by neglecting to brattice intact has been the principle defect in ventilation of this mine, requiring the issuing of similar orders at each visit. The airway of the main west entry was partially closed by drift and as it was inexpedient to restore the area, a split was ordered near south entry to fully furnish the southwest entries with full current.

EMMA NO. 3

located on the Springfield switch of the O. S. R. R., and is operated by the Emma Coal Co. Edwin Jones is the superintendent and J. D. Harbards is the mine boss. This is a drift opening into the No. 2 seam of coal, which is here from two to three feet in thickness. It is conducted on the single entry system, and is ventilated by two furnaces. One hundred miners and twenty-six day hands were employed at the end of the year.

Summer operations were mostly confined to the southwest portion of the mine which was fairly ventilated. A new airshaft was sunk on the east side on the fourth west entry. The outlet here was good, but on account of leaks at room doors and abandoned room necks, the current

at the faces of the entries was almost always favorable. Frequent closings of the stoppings were required. On February 25th, the scales were tested and found accurate.

TOM CORWIN NO. 1

Is located south of Glen Roy on the O. S., and C. H. & D. Railways, and is operated by the Tom Corwin Coal Co. S. J. Patterson is superintendent, and Charles Trace is the mine boss. This is a shaft opening ninety feet in depth into the No. 2 seam of coal, which is here from thirty to forty inches in thickness. It is operated on the double entry system, and is ventilated by fans. From one hundred and twenty to one hundred and sixty-five miners and from fifty-two to sixty-five day hands were employed. During the year considerable efforts have been made to make the east airway from the fan a good conductor for the current of air, but they stopped short of completing the work, although heavy expenses were incurred. A much larger fan guaranteed to produce seventy thousand feet of air was installed. This improved matters, but the sealing hermetically of this airway is necessary to produce the best results. Three men were killed here by accident during the year. On July 18th, Allen C. Stevens, while taking a car of slate down a steep grade on the first west entry north, slipped and fell between the gob and the mine car and received injuries from which he died a few hours later. Two men were accustomed to take the car down, but this time the car was started down before the other man could get there.

On August 31st, Rufus Dever Clark and Thomas Clark were killed by a heavy fall of slate in the face of their room on the tenth east entry. The roof in the room up to this time had been good. About seven feet from the face there was a small roll extending in a semi-circle from the east rib to the face in the center of the room. The men were engaged in cutting out the solid shots they had fired the night before when a large mass of slate fell upon them. From the roll a smooth slip developed in an upward slant toward the face where the fallen slate was three feet in thickness. It seems to me that it would be difficult to determine before hand that the roof was dangerous.

TOM CORWIN NO. 2

Is located northwest of Wellston on the B. & O. S. W. R. R. and operated by the Machine Coal Co. Joseph Harper has sole charge at the present time. Frank Pierpoint was mine boss for the early part of the year. It is a shaft opening into the No. 2 seam of coal which is here from two to three feet in thickness. It is conducted on the double entry system. Thirty miners and eleven day hands are employed. Much of the coal is cut by mining machines. The ventilation has only been moderate. At the close of the year the rooms at the head of the fan

st entry were deficient because of failure to continue the double entry stem. Efforts are being made to provide a return airway. During much of the summer the mine was idle.

CENTRAL

located on the O. S. Railway, between Coalton and Glen Roy, and is operated by the Central Coal Co. D. Armstrong Jr., is superintendent and German Walker is the mine boss. It is a slope opening into the No. 2 seam of coal which is here from one to three feet in thickness. It has been conducted on the single entry system and has fan ventilation. Fifteen miners and eight day hands are employed. On September 8, 1898, the tippie was destroyed by fire. They resumed operations about October 1st, 1899. The tippie has been rebuilt and it is the purpose to rebuild the mine of its pillars. Conditions are fair.

ACORN SLOPE

located southwest of Glen Roy on the C. H. & D. and the O. S. Railway and is operated by the Jones Coal Co. J. E. Jones is the superintendent and H. C. Chapman is the mine boss. It is a slope opening four hundred feet in length into the No. 2 seam of coal which is here from thirty to forty inches in thickness. During the first part of the year it was conducted on the double entry plan but changed during the year to the single entry system, and has fan ventilation. Sixty-eight miners and twenty-three day hands are employed. There has been difficulty in getting a full current of air to the head of the mine. Fourth and fifth east entries and fourth, fifth, sixth and seventh west entries have been changed from double to single entries, only entrymen are working in four of them until later in the year.

The ventilation service has been inefficient. I discovered some of it coming into the Tom Corwin No. 1 mine, and I had this bratticed. Still there is a loss. The main airway was partially cleaned and leaks stopped but not wholly, while improvements were made at the close of the year it was still unsatisfactory.

JONES NO. 2

located on the Ada switch of the O. S. Railway, and is operated by the Jones Coal Co. J. E. Jones is the superintendent, and Enos Miller is the mine boss. It is a slope opening into the No. 2 seam of coal, which is from thirty-three to thirty-six inches in thickness at this point. It is conducted on the single entry system and has fan ventilation. Sixty miners and twenty-two day hands were employed. Conditions have been slightly varied during the year. A crush came over the fourth and fifth entries east. During May the haulage was reopened. In June

the mine was in a fair condition. The area of the main airway was lessened by falls, and required them at several times to clean and close leaks at room doors. All entries have reached the boundary line. Another season will probably exhaust the workings of this mine.

ENTERPRISE

Is located northwest of Wellston on the B. & O. S. W. R. R., and is operated by the Enterprise Coal Co. John E. Jones is the superintendent, and Charles Holmes is the mine boss. It is a shaft opening sixty feet deep into the No. 2 seam of coal which is here about thirty-two inches in thickness. It is conducted on the double entry system and has fan ventilation. Twelve miners and seven day hands are employed. This is a new plant but recently installed. Substantial buildings have been erected and the coal is cut by mining machines. Conditions at this mine are fair.

BUCKEYE

Is located west of Coalton on the C. H. & D. R. R., and is operated by the Buckeye Coal Co. Marion Kissinger is superintendent and Philip Emmons is mine boss. It is a drift opening into the No. 2 seam of coal, which is here from thirty-four to forty-two inches in thickness. It is worked on the single entry system, and is ventilated by a furnace. Twenty-nine miners and twelve day hands are employed. Conditions at this mine are moderate.

VICTOR NO. 1

Is located near Coalton on the C. H. & D. Railway, and is operated by T. J. Evans & Co. T. J. Evans is superintendent and John Whiting is the mine boss. It is a drift opening into the No. 2 seam of coal which is here from thirteen to thirty-six inches in thickness. It is ventilated by a furnace and employs sixteen miners and four day hands.

COALTON NO. 3

Is located near Coalton on the O. S. R. R., and is operated by the Coalton Coal Co. Norris Cameron is the superintendent and Edward Brohard is the mine boss. It is a drift opening into the No. 2 seam of coal and varies in thickness from thirty to thirty-six inches. Thirty miners and eight day hands were employed. They are now employed drawing the entry and room pillars. It is ventilated by a furnace, frequently badly managed, and the room doors were dilapidated, which they were required to correct. The current has not been good at times. Improvements were made from time to time.

SPRINGFIELD

situated on the Springfield switch of the O. S. R. R., and is operated by the Chapman Coal Co. John E. Hays is the superintendent, and Wm. Nagel is the mine boss. This is a shaft opening fifty feet in depth into the No. 2 seam of coal, which is here from thirty-three to forty inches in thickness. It was changed into a double entry mine during the war, but they now propose to return to single entry system. It is ventilated by a fan. Sixty-eight miners and thirty day hands were employed. The new shaft is fitted up with substantial appliances. In August an electric plant was installed, and four chain machines are being used to cut the coal. The entrance of the current from the fan shaft has been changed from the north to the south side, with some improvement, but in general there is a neglect of the room doors and brattices to such an extent that the current is frequently sluggish at the faces, and the air side of the north west entries.

At every visit they had been requested to stop the leaks. This mars it would otherwise be a fair mine to work in. On January 26th, a horrible accident occurred by which Frederick Williams lost his life, and two others while engaged in putting a loaded car on the cage and moving it from the track. Williams and the cager went on the cage to the front end of the car on the track. The first lift was a failure when in a position to lift again the hoister lifted the cage and the deceased was caught between the load and the edge of the roof and crushed to death. The superintendent and the hoister who were present on the shaft say they heard the signal to hoist given, while those at the bottom, including the boss, say there was no signal given. The signal is given by means of a hammer being connected with the bottom of the shaft by a substantial cord that was looped in front of the middle post about twenty feet from the bottom. How the mistake occurred is not known.

GRACE

located on the Ada switch of the O. S. R.R., and is operated by the Chapman Coal Co. John E. Hays is the superintendent and Edmund Gregory is the mine boss. It is a shaft opening ninety feet in depth into the No. 2 seam of coal which is here from thirty to thirty-six inches in thickness. The mine is conducted on the single entry plan, and has fan ventilation. Sixty-four miners and twenty-five day hands are employed at the mine. The ventilation is generally found to be in a fair condition, except in February when there was an accumulation of ice in the air shaft which made the current sluggish. This was soon remedied.

CHAPMAN

located near Chapman on the O. S. R. R., and is operated by the Chapman Coal Co. John E. Hayes is the superintendent and Jacob Houser

is the mine boss. It is a drift opening into the No. 2 seam of coal which is here from twenty-eight to thirty-six inches in thickness. It is conducted on the single entry system, and has furnace ventilation. Two miners and eight day hands are employed. After a suspension of years this mine resumed operations in October. A new tippie has been erected. Conditions are fair.

PRICE

Is located on the Price switch of the O. S. R. R., and is operated by Cline & Barbour. J. C. Hurd, Jr., is superintendent and George Hayt is the mine boss. It is a drift opening into the No. 2 seam of coal which averages in thickness about twenty-six inches. That of the New Hill is thirty-five inches. It is conducted on the single entry system, and has furnace ventilation. Thirty-seven miners and twelve day hands are employed. During the busy season in the winter the men are employed in the New Hill, where the seam is larger, and in the summer in the tunnel where the low coal prevails. A new air shaft and furnace has been provided in the tunnel. Conditions at this mine are favorable.

STAR NO. 4

Is located in Liberty Tp., on a switch of the O. S. R. R., and is operated by the Star Furnace Co. Henry Price has entire charge. It is a drift opening into the No. 1 seam of coal, which is here from three to five feet in thickness. It is worked on the double entry and cut-off system and has fan ventilation. Twenty-five miners and sixteen day hands are employed. This is a new mine the product of which is used at the Star Furnace. The mine was opened during the severe weather of the winter of 98-99. A long switch extends from the railroad. A compressor has been installed and a number of buildings were erected. The coal is principally cut by machines. Conditions are fair. The opening of the plant under the unusual difficulties is a monument to the industry and integrity of the venerable superintendent.

GLOBE

Is located in Jackson and is operated by the Globe Iron Co. J. L. Crandall is superintendent and J. T. Jenkins is the mine boss. It is a shaft one hundred and eleven feet in depth into the No. 1 seam of coal which is here from thirty to forty-five inches in thickness. It is conducted on the double entry system and has fan ventilation. Forty miners and eleven day hands are employed. This mine is kept in good condition.

ECLIPSE

Is located on the Springfield switch of the O. S. R. R., and is operated by the Eclipse Coal Co. E. O. Roberts is the superintendent, and J. H. Hopkins is the mine boss. It is a drift into the No. 2 seam of coal

which is here from twenty-eight to thirty-six inches in thickness. Operations are conducted on the single entry system and has furnace ventilation. Forty-one miners and thirteen day hands were employed. This plant consists of three separate mines. One was exhausted at the close of the year. No. 2 has eight or ten rooms and the entry pillars yet to recover. No. 3 was opened during the year on the northwest section of tract. An airshaft and a good furnace have been provided. Sometimes the ventilation in these mines is permitted to become sluggish by inattention to the brattices, but they respond freely to instructions.

HURD'S SHAFT

Is located on Ada switch of the O. S. R. R., and is operated by the Hurd Coal Co. George Wheldon is the superintendent and J. J. Rowe is the mine boss. It is a shaft opening some seventy feet in depth into the No. 2 seam of coal, which is here from twenty-eight to thirty-five inches in thickness. It is conducted on the single entry system, and has fan ventilation. Twenty-five miners and seven day hands are employed. This mine resumed operations in January after a suspension of many years. The ventilation at first was not good as the airways were badly clogged by falls. On the fifth west entry they drilled into the Jones No. 2 mine, thus improving the flow of the current. On the ninth east entry they were required to perfect the stoppings to send the current to the faces.

JONES OF OAK HILL

Is located at Oak Hill on a branch of the B. & O. S. W. R. R., and is operated by the Jones Coal Co. J. E. Jones is the superintendent, and George Yates and Chas. McGowan successively mine bosses. It is a drift opening into the No. 5 seam of coal, which is here about three feet in thickness. It is worked on the single entry system and is ventilated by a fire basket. Sixteen miners and three day hands were employed in their busy season. Conditions were ordinary here as at my several visits I was compelled to instruct them to stop the leaks in the return. They were also ordered to raise the basket eighteen inches from the floor. The busy season is a very short one. Ordinarily from eight to ten men are employed.

OAK HILL

Is located at Oak Hill, and is operated by the Oak Hill Fire Brick Co. J. J. Thomas is superintendent, and Jesse Smith is the mine boss. This is a drift opening into the No. 5 seam of coal, which is here about thirty inches in thickness, with a seam of fire clay above it. This is also mined in the same connection. It is worked in single entries and is ventilated by a fire basket in the airshaft. Ten miners and three day hands are employed. This mine was found in fair condition.

DAVIS OF OAK HILL

Is located at Oak Hill on the B. & O. S. W. Ry., and is operated Thomas Davis Coal Co. Thomas Davis is the superintendent and Thor Smith is the mine boss. This is a drift opening into the No. 5 seam coal which is here about three feet in thickness. It is worked on single entry system, and has furnace ventilation. Eighteen miners and four day hands are employed. This mine resumed operations for the year. The furnace will be enlarged and arrangements made to draw equally from the north and south inlets.

MINES EMPLOYING LESS THAN TEN MEN.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	Number of Men.	P. O. Address
Bat's Nest	Drift	Poole and Pritchard....	4	Glen Roy.
Rhodes	"	Coalton Coal Co.....	8	Coalton.
Boylans	Slope	Peter Boylan, Sr.....	6	"
Goodrich	Drift	Henry Goodrich	2	"
Sells	"	Geo. Sells	2	"
Cochran's	"	Jack Cochran	6	"
Byers	"	Benj. Byers	1	Leo.
Faulkner	"	Jacob Faulkner	6	Leach.
Houser	"	Jacob Houser	6	Chapman.
Jones & Darling.....	"	Jones & Darling.....	2	Jackson.
Chambers	"	Wm. Chambers	2	Chapman.
Peake's	"	Wm. Peake	3	Coalton.
Dempsey & Bradshaw..	"	Dempsey & Bradshaw..	3	"
Laws	"	Lewis Gibson	4	Jackson.
Andrew Law	"	Andrew Law	1	"
C. W. Law.....	"	C. W. Law.....	6	"
Wm. Law	"	Wm. Law	5	"
Trago	"	Herbert Trago	2	"
Wartenbee	"	Sam'l Wartenbee	3	"
Lackey's	"	Albert Lackey	4	Rocky Hill.
Thomas	"	J. D. Thomas.....	2	Oak Hill.
Davis	"	J. A. Davis.....	2	"
Ward	"	Ward Coal Co.....	8	Kitchen.
Hall	"	Isaac Hall	8	Gallia Furnace.
Thompson	Slope	John Thompson	6	Jackson.
Stiff's	Drift	Allen Stiff	2	Coalton.
Hutchinson	"	E. Hutchinson	3	"
Lucas	"	Burt Lucas	2	"
Speelman	"	Chas. Speelman	5	"
McKittricks	"	McKittrick Coal Co....	6	Jackson.
Jordans	"	Jack Eisnagle	2	"
Bryant	"	Mrs. Bryant	3	"

VINTON COUNTY.

RACCOON

Is located at Minerton on the C. H. V. & T. R. R., and is operated by John L. Lawler, he being the superintendent and George Cavanaugh is the mine boss. It is a drift opening into the No. 4 seam of coal, which is here about four feet and eight inches in thickness. It is worked on the single entry system, and has furnace ventilation. The mine is generally found to be in good condition. The furnace needs to be kept at its maximum to give satisfaction. This is required of them. The main north entry is in a fault where the roof is very tender. This they seek to avoid by making another north entry some distance west. Sixty-three miners and ten day hands are employed.

STAR NO. 2

Is located near Hawks on the C. H. V. & T. R. R., and is operated by the E. W. Keck Coal Co. E. W. Keck is the superintendent and Sanford Freeman is the mine boss. It is a drift opening into the No. 4 seam of coal which is about four and one-half feet in thickness at this point. It is worked on the cut-off system and has fire ventilation. Sixteen miners and four day hands are employed. The ventilation was sluggish as it frequently is where this system prevails. They were ordered to make a tight airway to the faces of the rooms. They were driving a room to the northeast to make connection with the old works which would give better current.

ORETON

Is located at Oretton on the C. H. V. & T. R. R., and is operated by the Vinton County Coal Co. Wm. Ellis is the superintendent and Henry Eberts is the mine boss. These are drift openings into the No. 4 seam of coal which is here from three to four and one-half feet in thickness. They are conducted on the single entry system and have furnace ventilation. Forty-nine miners and ten day hands are employed. The mine is generally found in a fair condition, excepting that they have been careless about the room and doors, and brattices, thus dissipating the current. A new opening has been made at a point north of the first opening in which ten men were employed. An airshaft was provided and a current produced by a fire therein. The developement here is into a faulty streak, and its utility is questionable.

INGHAMS

This mine has been suspended during the year. At the close of the year I understand another firm is making preparations to operate the mine.

HEASLEY

This mine has been suspended most of the year.

ELKO

Is located at Vinton Station on the B. & O. S. W. Ry., and is operated by the Elko Coal Co. Geo. Schandly is superintendent, and W. S. Williams mine boss. It is a shaft opening one hundred and forty feet deep into the No. 2 seam of coal, which is here from thirty-five to forty inches in thickness. It is worked on the double entry system, and has fan ventilation. Sixty miners and twenty-four day hands are employed, in the early months of the year the number being materially lessened at the close of the year as the mine is nearing exhaustion. The mine was kept in good condition.

NEWLUNS

Is located northwest of McArthur and was operated by the McArthur Coal Co. F. E. Moore is the superintendent, and B. F. Newlun is mine boss. It is a drift opening into the No. 3 seam of coal, which is here about four feet and six inches in thickness. It is worked on the single entry system and has cut-off and natural ventilation. Fourteen miners and two day hands were employed. This is an old coal mine, and has recently been exploited for a shipping mine. A tram road is being built to the C. H. V. & T. Ry., which is not likely to be completed until next year. Artificial ventilation was ordered and furnace will likely be added.

MINES EMPLOYING LESS THAN TEN MEN.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	Number of Men.	P. O. Address.
Winters	Drift	Enos T. Winters.....	6	McArthur.
Smith Bros	"	Wm. Smith	4	"
Dewalts	"	J. S. Dewalt.....	9	Minerton.
Mill	"	Gilman & Ward.....	1	McArthur.

SCIOTO COUNTY.

MINES EMPLOYING LESS THAN TEN MEN.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	Number of Men.	P. O. Address.
Marsh	Drift	Morgan & Horton..... CLAY MINES.	9	Eifort.
No. 3 Clay..... Mill No. 1.....	Drift	Webster Fire Brick Co.	12	Webster. South Webster.

REPORT OF L. W. HULL.

Inspector of the Second District, from November 15th, 1898 to
July 15th, 1899.

Hon. R. M. Haseltine, Chief Inspector of Mines, Columbus, Ohio.

SIR: I have the honor of submitting to you a report of the mines in the Second Mining District of Ohio. This report shows the condition of the mines, and the improvements made for the period commencing November 15th, 1898, and ending July 15th, 1899. I am glad to report that my relations with all whom my official duty has brought me in contact has been of the most pleasant character, and it is with a sense of deep gratitude that I acknowledge the kindness in which I have been received while in the discharge of my duty. Thanking you for the many advices given, I am,

Respectfully,

L. W. HULL,

Inspector of the Second District.

Glouster, Ohio, July 15th, 1899.

ATHENS COUNTY.

CRESCENT OR NO. 24

Is a shaft opening about 100 feet deep made into the No. 6 seam of coal. This mine is about one mile south of Jacksonville on the line of the Kanawha & Michigan R. R., and is operated by the Northern Fuel Co. As a rule this mine was found in good condition, but on my visit June 19th, I found the breakthroughs throughout the mine had been neglected. I requested that breakthrough in No. 9 room on the 11th West entry be cleaned out; also that the dirt be removed from the main airway. I also requested the stairway repaired from top to bottom and as the breakthroughs had been partly filled, and others half finished, I directed a general overhauling of the breakthrough system.

C. P. EVANS

Is located in East Nelsonville. It is a drift opening into the No. 6 seam of coal. The mine has been practically worked out. At the time of my visit a force of ten miners were at work taking out the cullings of many years operation. On my last visit June 27th, I found the mine in good condition.

NEW 29

Is located about two miles northwest from Nelsonville. It is a drift opening into the No. 6 seam of coal. It is now operated by the Wilson Coal Co., who employ twelve miners and two day hands. There is but one entry in operation. The coal is nearly exhausted. I requested breakthroughs made in room No. 1, 2 and 3. I also requested breakthrough from north entry into room 5, then in 6 and 7. This will supply the mine with sufficient air.

BEAUMONT & CHAUNCEY COAL CO.

This mine is located at Chauncey on the line of the Kanawha & Michigan R. R. It is a shaft opening into the No. 6 seam of coal. I requested breakthrough made in room No. 1 in first east on the north side, breakthrough in room No. 1 on the fourth east entry, breakthrough in room 2, 3rd and 4th rooms on the sixth west entry. I stopped two east entries because of their being ahead of the air. The mine is now in the hands of a receiver, consequently it was idle.

KISTLER OR NO. 16

Is located two miles west of Glouster on a branch of the K. & M. R. R. It is a shaft opening 110 feet in depth into the No. 6 seam of coal. It is worked both on the double and triple entry system with fan ventilation. With but few exceptions I have always found this mine in good condition. On my visit on July 7th, I made the following requests; that breakthrough into the No. 7 room on the ninth east be cleaned out, and two breakthroughs made in the No. 2 room on the 7th east on the north side, rooms 8 and 9 and the 7th east entry north were ahead of the air and stopped. I requested breakthrough made in No. 11, 7th east entry north side; also requested breakthrough to be finished in the 7th west on the north side.

A door hung between the 7th and 8th west on north side, requested check door hung between No. 1 and 2 rooms, 9th west north side, also check door to be hung between rooms 6 and 7, ninth east north side.

CARBONDALE

These are drift mines, three in number opened into the No. 6 seam of coal near Carbondale, a station on the Mineral City branch of the Baltimore and Ohio R. R. Mine No. 1 is only working four men and owing to faulty coal the mine will be abandoned when four rooms are completed. Mine No. 2 is a new opening worked on the double entry system. At my last visit there was a fan under construction, and I requested a uniform breakthrough system established. The mines were idle on my last two visits, and no examination was made.

PHOENIX NO. 2

Is located near Glouster on a line of C. S. & H. R. R. It is a shaft opening 100 feet in depth into the No. 6 seam of coal. On the 23rd of November in company with Chief Mine Inspector, Haseltine, we visited this mine and found the ventilation greatly confused, and owing to irregularities existing I made several visits since that date, and in company with the mine boss, John Jones, we put in three days lining breakthroughs and on my visit on July 5th, I found the distribution of air had been greatly improved.

DALETON

This mine is located four miles southwest of Athens on the B. & O. S. W. R. R. It is a shaft 130 feet deep opening into the No. 6 seam of coal, which varies in thickness from $3\frac{1}{2}$ to 6 feet. On my visit on December 1st, I stopped several rooms on the 8th west entry, and again on my visit on May 26th and 27th I found the air throughout the mine irregular. I stopped the south cut-off, it being without air, and requested the doors throughout the mine be overhauled. I gave the company one week in which to put the mine in proper condition. On my return on June 5th I found a double turn had been put on placing the mine in good condition. There has been a door hung between the dark and main door on the south. A door between the 1st and 2nd south entry. A check door between room No. 29 and 30 on the 4th east entry; also a door on the main north entry, and seven brattices placed. The air will be changed on this entry.

NO. 4

Is located near Jacksonville. It is a shaft 110 feet deep into the No. 6 seam of coal, and is owned by W. P. Rend. This mine resumed operations last December after several months suspension. It has required close attention and many visits, and for the first time in its history, the mine has proper ventilation, and its general conditions were good.

BLACK DIAMOND

Is located at Lathrop on the line of the T. & O. C. extension, and is owned by the Black Diamond Coal & Coke Co. This is a drift opening to the No. 8 seam of coal, ventilated by means of a fan, and conducted on the double entry system. I found this mine without a proper breakthrough system and requested that one be established. I stopped rooms No. 1 and 2, on the fifth east entry as they were one hundred and eighteen feet ahead of the air. I requested forty feet of switch retimbered above the main entry. Since that time I found the entry had been retimbered and a breakthrough system had been established. The conditions in general have been improved.

BIG RUN

Is situated at a station of the same name on a line of the T. & O. C. extension, and is owned and operated by C. A. Nice. It is a slope opening into the No. 8 seam of coal which is about ten feet in thickness at this point. A fan is used as a mode of ventilation. Twenty miners and four day hands are employed. Since my first visit the mine has been greatly improved. A fan and ladder have been added to the shaft, and by this addition, air for the first time, has been in abundance. On my last visit I found the mine in good condition.

BROADWELL

Is located at Broadwell, and is owned by O. Brent Guard. This is a drift opening to the No. 8 seam of coal and is about ten feet in thickness at this point. A furnace is used as a ventilating power. Twenty-eight miners and six day hands are employed. I was called to this mine to test a pair of scales on December 22nd, and found them weighing correctly.

FEDERAL NO. 1

Is a drift opening into the No. 8 seam of coal which at this point is five feet in thickness, the top coal being cut out. It is owned and operated by G. W. Haybron. Eleven miners and three day hands are employed. The mine is ventilated by natural pressure. I requested that a door be placed on the main entry above the first north entry, as the air was not sufficient for that part of the mine. I also requested that a furnace be placed in the air shaft, otherwise the condition of the mine was fair.

CLAY NO. 2

Is located about one mile west of Nelsonville at the Company's factory where the output is used for the manufacture of brick and sewer pipe. It is owned and operated by the Nelsonville Sewer Pipe Co., and is ventilated by furnace pressure. This is the only clay mine now in operation to supply this factory. On my visit April 17th I found the mine in excellent condition. Eighteen miners and two day hands are employed.

BRIAR RIDGE

Is a shaft opening into the No. 6 seam of coal, and is owned by W. P. Rend & Co. When in operation it usually employs 140 miners and 47 day hands. At this time but two entries in the north end of the mine are working, the output being taken out through the Phoenix No. 2 mine. The part that was working was found in good condition.

MINKER RUN

Is located near Nelsonville on a line of the C. H. V. & T. R. R. It is a drift opening into the No. 6 seam of coal, and is operated by the Hocking Valley Coal Co. Mell Robb is superintendent, and N. A. Williams is mine boss. 135 miners and 46 day hands are employed. The roof of this mine is of such a nature that it makes it very dangerous to pass to and from the places of work. I was sent to this mine to investigate the top, and the mode of working the same, of which I made a report to the Chief Inspector of Mines. My visits there have been comparatively numerous, and the condition of the mine under the new supervision has materially changed for the better.

ELM ROCK

It is a drift opening into the No. 6 seam of coal, and is worked on the double entry system with furnace pressure as a means of ventilation. It is operated by Price and Patton. Forty-five miners and five day hands are employed. I requested breakthroughs made in rooms No. 12 and 15, 1st west entry, two brattices closed between entries No. 1 and 2 west; and a breakthrough from the first north entry into room No. 16, and check door hung between the first and second north entries. Otherwise the condition of the mine was good.

HALBERT

Is a drift opening into the No. 6 seam of coal. It is located at west Floodwood on the line of the C. H. V. & T. R. R., and is owned and operated by the Shaffer Coal Co.. E. E. Shaffer is superintendent and D. W. Scott is mine boss. Thirty-five miners and three day hands are employed. I made two visits and found the mine idle both times, and no inspection was made.

HIAWATHA

Is a drift opening into the No. 6 seam of coal and is located at Orbiston on the Snow Fork branch of the C. H. V. & T. R. R., and was formerly operated by the Raybould Coal Co., but recently it has changed hands and is now operated by the Sunday Creek Coal Co., with C. C. Sharp as superintendent and David Cook mine boss. This mine has been greatly improved, yet on my last visit I condemned the fan as it was not equal to the task required of it. I suggested to C. C. Sharp that he re-locate the fan, and by adding a larger motor he would be able to increase the speed. Then by shortening the air circuit I fully believe that it will accomplish the desired results.

BROOKS HILL

Is a drift opening into the No. 6 seam of coal and is owned by the Canny Bros., and is located about three miles from Mineral City on the Carbon-dale branch of the B. & O. S. W. R. R. Gus Callahan is superintendent, and Phil Kincade is mine boss. There are ten miners employed when working full force. It is ventilated by furnace pressure, but at present natural pressure is used which is sufficient for the number of men employed. The condition of the mine is fair.

SEDALIA

Is a slope opening into the No. 7 seam of coal located in the village of Glouster, and is owned and operated by William Palmer. It is worked on the double entry system with furnace ventilation. I requested a brattice placed in the main air course between the furnace and the third east entry, also that a trapper be placed at the door on the third east entry and a check door placed between rooms No. 22 and 23 east entry, rooms 22 and 23 on the fourth east entry stopped until a breakthrough was made.. I requested a check door placed between rooms 20 and 21 fourth east entry. Ten days were given to properly ventilate the mine. My requests were complied with and the conditions were satisfactory.

NO. 10

Is a shaft opening 110 feet deep into the No. 6 seam of coal, and is located at Derthick on the T. & O. C. R. R., two miles southwest of Glouster. It is owned by the Sunday Creek Coal Co., and is operated on the double, triple and quadruple entry systems. C. C. Sharp is superintendent and John Roberts is mine boss. 245 miners and 69 day hands are employed. This mine has a very large territory in operation. The conditions in general of late months have materially changed for the better.

OAK DALE

Is situated near Glouster on a line of the C. S. & H. R. R. It is a shaft opening into the No. 6 seam of coal and is worked on the double entry system. The mine is equipped with fan ventilation and is operated by the North Star Coal Co. One hundred miners and thirty-seven day hands are employed. I requested that a speaking tube be placed in the shaft. The mine has greatly improved since my former visits both in regard to ventilation and general conditions, as I was compelled on my former visits to temporarily close both the entry and room work on account of bad ventilation and reckless entry driving.

BESSIE

Is a shaft opening sixty feet made into the No. 6 seam of coal. It is located near Glen Ebon, on the line of the C. H. V. & T. R. R., and is owned by the Buckeye Coal Co. It is ventilated by fan pressure and is conducted in a harum-scarum manner. I stopped room No. 21 on the third east entry until a breakthrough was made, also stopped the dark east entry until a breakthrough was made. Requested a trapper to be placed at the door between entries No. 4 and 5, and all doors on the main entry to be repaired, also requested rooms Nos. 3, 4, 5, 6 and 7 on 3d west entry to be properly posted. The company has made an assignment, consequently it was idle.

NEW NO. 29

Is a drift opening into the No. 6 seam of coal, and is located about two miles west of Nelsonville on a line of the C. H. V. & T. R. R. The mine is about exhausted, there being but one entry in operation at this time, and the rooms working are near the crop. I requested breakthroughs made in rooms Nos. 1, 2 and 3, also breakthroughs into room No. 5 north entry, thence into rooms Nos. 6 and 7. M. L. Wilson is superintendent and mine boss. Twelve miners and two day hands are employed.

HALF MOON

Is a drift opening into the No. 6 seam of coal and is owned by Juniper & Lampman, and leased by J. M. Stillwell, who is at this time operating the mine. It is located near Buchtel, and employs thirty miners and six day hands. The mine is well worked out at this time, there being but five rooms in operation, the rest being pillar work. I stopped two rooms ahead of the entry because of the presence of black damp. There will soon be some new work opened in the north hill, which will supply about fifteen rooms. This coal will be hauled through the old mine and dumped over the tipple.

BELL RUN NOS. 1 AND 2.

Are drift openings into the No. 6 seam of coal, and are located about three miles northeast of Nelsonville on the Monday Creek branch of the C. H. V. & T. R. R. They are owned and operated by the Maple Hill Coal Co. They are worked on the double entry system and are equipped with fan ventilation. Joshua Spencer is superintendent, Joe Moore is mine boss. Eighty miners and twelve day hands are employed. I made three visits, and the mines were found idle on each occasion, however, I looked over their ventilating conditions which appeared to be very good.

LIST OF SMALLER MINES VISITED.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	P. O. Address.
Coe Hill	Drift	Juniper & Lampman.....	Nelsonville.
Briar Hill	"	Jonas Patton	"
Greendale	Slope	Greendale Coal Co.....	Columbus.
Schuler	Drift	J. F. Schuler.....	Sharpsburg.

GALLIA COUNTY.

CARLS NO. 1

Is located at Carlton on the line of the C. H. V. & T. R. R., and is operated by E. L. Carl. It is a drift opening worked on the double entry system and a furnace is used as a means of ventilation. H. V. Carl is both superintendent and mine boss. Twenty-five miners and eight day hands are employed. The general condition of the mine was good.

JONES SLOPE IS STILL IDLE.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	P. O. Address.
Jones Slope	Slope	I. W. Jones.....	Gallipolis.
Carls No. 2.....	Drift	E. L. Carl.....	Carlton.

LAWRENCE COUNTY.

KELLEY

Is a drift opening located in Ironton, and is operated by the Kelley Iron & Nail Co. Thirty-five miners and seven day hands are employed. Conrad Klien is superintendent and mine boss. The mine is running full time and was found to be in good condition.

HALLEY & WELLS

Is a drift located about nine miles north of Ironton on the Iron Railroad and is ventilated by furnace pressure. There are twenty-two miners who are employed by the day at \$1.10 each. At this time the mine was

working night and day. The company has complied with my requests upon my former visits as to breakthroughs and the repairing of doors, the results of which have greatly improved the mine.

MEIGS COUNTY.

SYRACUSE SLOPE

Is located at Syracuse on the banks of the Ohio river, and is operated by the Syracuse Coal & Salt Co. L. H. Bridgeman is the superintendent, and Thomas Mainwaring is mine boss. It is a shaft opening sixty feet deep penetrating the No. 8 seam of coal. On my former visit I requested that the water be removed from the way of escape in case of accident, and my request has been complied with. I requested that a check door be placed between room No. 1 and 2 on the little east entry; also a breakthrough between rooms No. 1 and 2 on the 1st west entry, otherwise the mine was in good condition. Seventy-two miners and thirty-two day hands are employed.

SYRACUSE SLOPE

Is located one mile west of the Syracuse shaft, and is conducted under the same management. It is a slope about three hundred feet long made into the Pomeroy seam of coal, and is worked on the double entry system which is used as the inlet for the air to the shaft. Ten miners and three day hands are employed. With the exception of a bad door on the 20th entry the mine was in good condition.

MINERSVILLE

Is located at a town by that name. It is a drift opening into the Pomeroy seam of coal, and was formerly owned by D. S. Lewis, but is now operated by a co-operative company. I requested that a check door be hung between the first two rooms on the main dark entry, and one between the last two rooms, otherwise the condition was fair. Thirty miners and eleven day hands are employed.

KANAWHA SALT OR GLENDALE

Is a drift opening into the No. 8 seam of coal. This mine is an old one that had been abandoned at one time, and at this time the company are taking the cullings of many years work out of the mine. This mine is provided with furnace ventilation which was found to have a back action pressure. The air was also checked owing to a reckless breakthrough system in the rooms. I then marked off a system of breakthroughs. On my return visit I found it complied with and with the exception of room No. 2 light entry, which was ahead of the air and was ordered stopped, the mine was in good condition especially for air.

COAL RIDGE

Is a drift opening into the incorporated limits of Pomeroy. The old mine is exhausted. There is now a new opening reached by trestle from the old tunnel hauling the coal over the same route to the salt works. This new mine is located on the south side of the hollow from the old mine, and the cars run round. J. W. Thomas is superintendent, and J. W. Daniel is mine boss. Sixteen miners and four day hands were employed. The mine is generally in good condition.

CHARTER OAK

Is a drift opening located at Pomeroy, and is operated by B. J. Malone. It is worked on the double entry system, with a fan as a means of ventilation. I found this mine in bad condition, and requested the bad top taken down and the main dark entry properly posted. I requested a check door to be moved above the first room on the dark entry; also requested a breakthrough made in room No. 13 light entry. I requested check door to be placed between room No. 15 and 16 light entry; also breakthrough in rooms No. 6 and 11, same entry. Requested check door between third and fourth east entry. I stopped rooms No. 1, 2, 3, and 4, fourth east entry which was one hundred and twenty feet ahead of the air.

EXCELSIOR

Is operated by the Excelsior Salt Co. It is a drift opening into the Pomeroy seam of coal, and mine is worked on the double entry system and is ventilated by means of a furnace. Fifteen miners are employed and three day hands. B. Koehler is superintendent, and Dan Diehl is mine boss. I requested that a check door be hung between the first two rooms on the second west entry, otherwise the mine was in good condition.

ROLLING MIEL NOS. 1 AND 2

Are drift openings into the No. 8 seam of coal. No. 2 is in a manner exhausted. It is ventilated by means of a furnace which supplies sufficient air. The mines were found to be in good condition. Martin Ebersbach is superintendent and Valentine Ebersbach is mine boss. The two mines employ twenty-one miners and four day hands.

SILVER RUN

Is located four miles west of Middleport on the line of the C. H. V. & T. R. R., and is operated by W. C. Russell who is also mine boss. It is a drift opening made into the No. 8 seam of coal. Twenty-five miners and five day hands are employed. I found this mine practically without

air. The mine was absolutely without a breakthrough system. On my return visit breakthroughs were made and the doors were being hung the day I was there. Since that time the mine has been idle and I made no inspection.

BUCKEYE SALT CO.

Is a new opening in the corporation limits of Pomeroy. It is a drift opening penetrating the No. 8 seam of coal. It is being worked in a practical manner, employing sixteen miners and two day hands. Chas. McQuigg is the superintendent, and Edward Meeks is mine boss. I requested a barrel of black oil to be removed from the mine, otherwise there was no complaint.

PEACOCK

Is located at Pomeroy. It is a drift opening into the No. 8 seam of coal, and is ventilated by means of a furnace. It is worked on the double entry system and employs one hundred miners and forty-two day hands. This mine is equipped with a furnace designed by Chief Haseltine. It gives twenty-six thousand feet of air, discounting results of fans employed at some of the larger plants. I requested a door placed between rooms No. 1 and 2 on the first east entry, otherwise the mine was found in good condition. Martin Ebersbach is superintendent, and William Eversbach is mine boss.

WASHINGTON COUNTY.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	P. O. Address.
Pioneer	Drift	Ross & Baker.....	Coal Run.
Felix.....	"	Wallace & Rose.....	"
Henderson	"	Hickman Cowells Co.....	"

REPORT OF DAVID H. WILLIAMS.

Inspector of the Second District from July 15th, 1899 to November 15, 1899.

Hon. R. M. Haseltine, Chief Inspector of Mines, Columbus, Ohio.

DEAR SIR:—I have the honor of submitting to you the annual report of the mines of the Second District for a period of four months, beginning July 15th, 1899, and ending November 15th, 1899, with the number of visits made to each mine, and the improvements ordered and made during said period. Nothing of great importance has occurred in this district during the period covered by this report. With but few exceptions the mine laws have been obeyed. It will be noticed in this report that there are a few mines in the district which I have not visited. This is due partly to the short period of time which I have held this position, and partly to the fact that I have given a great deal of time and attention to the smaller mines.

I desire to express my gratitude to the miners and operators of the district for the courtesy shown me and the assistance rendered me during my work among them. I also wish to thank you for the assistance received at your hands, which on my part has been fully appreciated.

Yours very truly,

D. H. WILLIAMS,
Inspector of Second District.

Glouster, Ohio, November 15, 1899.

ATHENS COUNTY.

MINKER RUN

Is located near the village of Nelsonville, on the line of the C. H. V. & T. R. R., and is operated by the Hocking Coal Co. M. Robb is superintendent, and Nathaniel Williams is the mine boss. It employs one hundred and thirty miners or fillers, twenty men who operate the mining machines, and twenty-two inside and twenty outside day hands. It is a drift opening and penetrates the No. 8 seam of coal, which at this point is six feet in thickness. It is worked on the double entry system and is ventilated by means of a fan. The mine is equipped with a rope haulage operated by compressed air. When visited on August 1st, I found the mine in fair condition, as there was a great deal of repairing being done in a way of brattices and doors. I requested a bad piece of slate taken down which was in danger of falling. I also stopped room No. 11 on the west until it should be properly timbered. On August 3d, I tested the scales, and found them correct. On August 14th, I found the mine in fair condition with a good register of air over it.

NO. 10 X OR HIAWATHA

Is located at Orbiston, a station on the line of the Snow Fork branch of the C. H. V. & T. R. R., and is operated by the Sunday Creek Coal Co. C. C. Sharp is superintendent and Thomas Stiff is the mine boss. Ninety fillers, twelve machine men, twenty-nine inside and nineteen outside day hands were employed. This is a drift opening worked on the double entry system, and has fan ventilation. It penetrates the No. 6 seam of coal, which is here six feet in thickness.

It is equipped with rope haulage and machines operated by electricity are used in mining the coal. I made two visits to this mine during the four months from July 15th, to November 15th, one on July 31st, at which time it was in a very poor condition, a number of rooms on the different entries being without breakthroughs. The air at the head of the third west entry was not sufficient for the number of men at work. I requested the breakthroughs to be made at once, and arrangements made to carry sufficient air to the third west entry. On November 9th, the mine was found to be in fair condition with the exception of the first and second west entries which were without sufficient air due to the doors and brattices in that part of the mine being in poor condition. I requested the mine boss to have them repaired at once, which he promised to have attended to on the next day.

NO. 10

Is located two miles southwest of Glouster on a branch of the T. & O. C. R. R., and is operated by the Sunday Creek Coal Co. C. C. Sharp is superintendent, and John Roberts is the mine boss. Two hundred miners, sixty-nine inside and eighteen outside men are employed. This is a shaft opening one hundred and twenty feet deep and is worked on the double entry system. Two fans are used as a means of ventilation. The opening penetrates the No. 6 seam of coal which is six feet in thickness, at this point and machines operated by electricity are used for mining the coal. The coal is hauled to the bottom of the shaft by two motors. On August 11th, I was requested by the Mine Committee to test two sets of railroad scales, Nos. 1 and 2. No. 1 was accurate, but No. 2 was five pounds in favor of the miners. On August 16th, I found the mine in good condition except on the north side two breakthroughs at the head of the fifth and sixth west entries were left open. I asked the mine boss to have the back one closed. On August 17th, I did not find the south side in as good condition as the north side due to the brattices and doors being in poor condition. I urged these to be repaired at once. I stopped rooms fifty-one and fifty-two on the third west entry until they could be properly timbered.

CLAY NO. 6 AND 7

Are located one mile west of Nelsonville on the line of the C. H. V. & T. R. R., and are operated by the Nelsonville Sewer Pipe Co. James Dew is manager, and D. E. Dew is the mine boss. Eighteen miners and two day hands were employed. These are drift openings in which entries are being driven to the line which will be worked on the long wall retreating system. They penetrate the No. 5 seam of coal, which at this point is eight feet in thickness. The product is used in the manufacture of paving brick at the company's factory located near by. On August 3d, the mine was in good condition.

HALBERT

Is located at Old Floodwood, a station on the C. H. V. & T. R. R., and is operated by the Shaffer Coal Co. E. D. Shaffer is the superintendent and W. H. Scott is the mine boss. This is a drift opening worked on the double entry system, and an iron basket hung at the bottom of the air shaft is used as an artificial means of ventilation. This mine penetrates the No. 6 seam of coal, which at this place is five feet in thickness. When visited on July 21st, the mine was not working. I was requested by Chief Mine Inspector R. M. Haseltine to measure the mine cars, which had been measured by D. B. Wilson, Inspector of the Third District and myself. On October 31st, the mine was found in fair condition, except a room on the main dark east entry in which there was poor ventilation. I requested that check doors be placed on each of them so that sufficient air would be conveyed to the rooms. Eleven miners and four day hands are employed.

ELM ROCK

Is located near West Floodwood on the C. H. V. & T. R. R., and is operated by Price & Patton. L. H. Price is superintendent and mine boss. Thirty men and six day hands were employed. This is a drift opening, worked on the double entry system, and is ventilated by means of a furnace. It penetrates the No. 6 seam of coal, which at this place is six feet in thickness. When I visited the mine on August 28th, I found that it was shut down, but on the 1st of September they had resumed operations. The mine had undergone a change in the method of mining by the installation of electric mining machines. On my last visit I found the mine in good condition except a few rooms on the second west entry which were poorly ventilated. I requested that a check door be placed on said entry so that more air would be conveyed to these rooms.

NO. 3 OR HALF MOON

Is located at Buchtel a station on the Snow Fork branch of the C. H. V. & T. R. R. and is operated by J. M. Stilwell who is general manager and mine boss. It employs thirty-five miners and eleven day men, and four

machine men. It is a drift opening consisting of two hills the first being pick work, and the second one being operated by electrical machines. Both hills are worked on the double entry system. Natural pressure is relied upon to furnish the ventilation in the first hill, but the second hill is being ventilated by means of a furnace. It penetrates the No. 6 seam of coal, which at this point is six feet in thickness. The electricity for running the mine is obtained from the Maple Hill Coal Co., whose power plant is located on the east side of the hill. The wires carrying the power are placed along the entry and through a room that connects with the Bell Run mine. On August 2d, I found the first hill in good condition, but the second hill had very poor air. I requested that the furnace be repaired at once and put in use. On November 13th, I found this had been done, and both hill's mines were in fair condition.

WELLS

Is located at Boyle's Crossing, a station on the C. H. V. & T. R. R., and is operated by A. H. Wells and Son. A. H. Wells is general manager and E. H. Price is mine boss. They employ eleven miners and one day hand. It is a drift opening worked in a hap hazard manner, and is ventilated by natural pressure. It penetrates the No. 6 seam of coal which at this place is six feet in thickness. The coal is hauled from the tipple in road wagons to the railroad about one half mile where it is loaded into cars. On July 21st, I visited this mine at the request of Chief Inspector Haseltine. The cars were measured by D. B. Wilson, Inspector of the Third District, and myself. The mine was idle at this time. On November 1st, the mine was in fair condition.

BELL RUN

Is located three miles east of Nelsonville on the Monday Creek branch of the C. H. V. & T. R. R., and is operated by the Maple Hill Coal Co. Joshua Spencer is superintendent, and Joseph More is the mine boss. One hundred and thirty-two miners and thirty-two day men and sixteen machine men were employed. They are two drift openings on the opposite hills, worked by the double entry system. The east hill is ventilated by means of a fan, and the west hill by means of a furnace. This latter hill is almost worked out. It penetrates the No. 6 seam of coal, which at this point is six feet in thickness. Machines operated by electricity are used in undermining the coal. On July 27th, I found the mine idle on account of the lack of cars. On August 2d, I found the mine in good condition except three rooms on the third east entry in which I requested breakthroughs made. On August 30th, I was called to investigate the accident of Ludwig Pospichel which occurred on the tipple while in the act of cutting the tail rope from the mine cars, and which resulted in his death on the same day. On November 13th, the mine

was in fair condition, except the third and fourth west entries which were in bad condition, on account of the doors and brattices. I stated that if these were not repaired at once I would stop that part of the mine. The mine boss promised to have the matter attended to the next day.

COE HILL NO. 2

Is located two miles west of Nelsonville on the Monday Creek branch of the C. H. V. & T. R. R., and is operated by the Coe Hill Coal Co. Wm. Barber is superintendent and Joseph Barber is the mine boss. Fifteen miners and five day hands were employed. It is a drift opening worked on the double entry system and is ventilated by means of a furnace. The opening penetrates the No. 6 seam of coal, which at this place is six feet in thickness. Electricity furnished by the Bell Run mine is used to operate the machines. On July 21st, I was requested by Chief Inspector Haseltine to measure the cars. The mine at this time was idle, but a number of cars were about the mine which were measured by D. B. Wilson and myself. On October 30th, the mine was in bad condition on account of trap doors being in need of repair. I ordered these repaired at once.

CARBONDALE NO. 2* AND 3

Are located near a station by the same name on the Mineral City branch of the B. & O. S. W. R. R., and is operated by the Carbondale Coal Co. M. H. Doolittle is superintendent and mine boss. There are two separate openings which give employment to eighty miners and twenty-one day hands. The drifts are worked on the double entry system, and use fans as a mode of ventilation. It penetrates the No. 6 seam of coal which varies in thickness from four to five feet. On August 9th, I found the No. 2 mine idle on account of repairs, but No. 3 was in good condition.

KENARD OR BROOKS HILL

Is located one mile south of Carbondale on the Mineral City branch of the B. & O. S. W. R. R., and is operated by the Canny Coal Co. Phil Canny is the general manager, and Gus Callahan is the mine boss. The mine employs ten miners and two day men. This is a drift opening penetrating the No. 6 seam of coal, which at this point varies in thickness from three to three and one-half feet. It is worked on the double entry system, an improvised furnace being used as a means of ventilation.

On August 8th, I found the mine in bad condition, as it could not be aired until a few yards of entry were driven to connect the furnace with the main part of the mine. I gave the mine boss ten days in which to perform the work, stating that I would stop the mine at the end of that time if the work was not completed. On August 14th, I was called

to the mine to investigate the accident which resulted in the death of Hiram Tracy. On August 29th, I found that the work that I had ordered to be done on August 8th, was nearing completion. I also requested the mine boss to add ten feet to the furnace stack as I thought it too low.

DALETON NO. 1

Is located at Rawndale, a station on the B. & O. S. W. R. R., and is operated by the Luhrig Coal Co. A. C. Cunningham is the general manager, Wm. Bailey is the superintendent and Thomas Winning is the mine boss. It is a shaft mine one hundred and twenty feet deep, worked on the double entry system, and is ventilated by a fan. Electricity is used in operating the machines for mining the coal, which is hauled to the bottom of the shaft by an electric motor. One hundred and ninety-six miners, eighty-three day men and eighteen cutters were employed. The improved machinery for facilitating the method of cleaning the coal has been abandoned. On August 10th, I found the mine in fair condition, except the doors and brattices throughout the mine were in poor condition. I requested the mine boss to repair these at once.

BIG RUN

Is located on the line of the Federal Valley extension of the T. & O. C. R. R., and is operated by C. A. Nice. Twenty miners and four day hands were employed. It is a slope opening into the No. 8 seam of coal, which is separated in the centre by twenty-eight inches of gray slate, and eight inches of white clay. Immediately above the band is found three and one-half feet of coal. The mine is worked on the single entry system and is ventilated by a fan. On September 20th, the mine was in good condition.

BLACK DIAMOND

Is located at Lathrop on the line of the Federal Valley extension of the T. & O. C. R. R., and is operated by the Black Diamond Coal & Coke Co., and is under the supervision of George Green, with Samuel Pyle as mine boss. It employs seventy-five miners and twenty-one day hands, and sixteen cutters. It is an opening worked on the double entry system and has fan ventilation. The opening is made into the No. 8 seam of coal which is similar in composition to the seam of coal in this vicinity. Electricity is used as a power to mine the coal and a motor hauls it to the tippie. On July 21st, I found breakthroughs in several of the rooms badly obstructed in front. I requested the mine boss to give this matter his attention at once. With this exception the mine was in good condition.

OAKDALE

Is located at Oak Dale on the C. S. & H. R. R., and is operated by the North Star Coal Co. L. D. Lampman is manager and P. Burns is

the mine boss. It is a machine mine and employs seventy-five miners, twelve cutters and thirty-seven day hands. It is a shaft opening ninety feet deep and is worked on the double entry system. It has fan ventilation, and penetrates the No. 6 seam of coal, which is here six feet in thickness. On July 29th, I found that all requests made prior to this time had been complied with. With the exception of room No. 23 on the west entry the mine was in good condition. I stopped work in this room until rooms No. 22 and 24 were driven up to make a breakthrough into room No. 23. On November 10th, I found a few brattices in bad condition. The mine boss promised to have these repaired at once, otherwise the mine was in good condition. I also found two drivers using black oil which is contrary to law. I informed them that another offense of the same kind would necessitate the enforcement of the law.

BROADWELL

Is located at a station by the same name on the Federal Valley extension of the T. & O. C. R. R., and is operated by the Broadwell Coal Co. O. B. Gard is general manager, and Arthur Ogg is mine boss. Thirty-five miners and five day hands are employed. It is a drift opening worked on the double entry system. It has rope haulage from the mine and is ventilated by means of an improvised furnace. The opening penetrates the same seam of coal as the Big Run mine, similar in formation and of the same thickness. On July 25th, the mine was found in bad condition, on account of the furnace drawing the air from the old workings near the furnace. I ordered the mine boss to brattice off the old workings at once. On September 6th, I found the order had been complied with, yet the result was not satisfactory on account of the airshaft not having a stack. The two points of outlet and inlet were too near the other side where the old works extended. I ordered the mine boss to erect a stack at once. Otherwise the mine was in fair condition.

FEDERAL VALLEY NO. 1

Is located near the Broadwell mine on the same railroad and is operated by G. W. Haybron who is general manager. Seven miners and three day hands find employment at this mine. It is a drift opening worked on the double entry system and is ventilated by the means of a fire built on some rocks at the bottom. The opening is made into the No. 8 seam of coal, which at this point varies in thickness from three to four feet. The top coal and gray slate which is characteristic of this seam disappears at this point which is evidence that the mine is under a fault. On July 26th I found the mine idle on account of the lack of cars. On September 7th, I found the mine in good condition.

SEDALIA

Is located on the T. & O. C. R. R., in the village of Glouster, and is operated by Wm. Palmer who is general manager. Thomas Mooney is mine boss. Twenty-eight miners, eight cutters and eight day hands were employed. It is a slope opening worked on the double entry system and is ventilated by means of a furnace under the boiler at the bottom of the air shaft. The opening penetrates a valuable vein of coal from three to four feet and six inches in thickness, which is known as the No. 7 seam. The coal is mined by electric machines and is hauled to the tippie by means of a rope. On August 15th, the mine being in bad condition and also a few rooms having no breakthroughs, I asked the mine boss to attend to these matters at once. On September 8th, I was requested by the Mine Committee to test the scales. I did so and found them weighing correctly. On September 27th, I found my request of September 8th, had been complied with, and the mine was in good condition, except that three rooms on the third east entry were without breakthroughs. I was requested to again test the scales which I did and found them to be accurate.

NO. 16

Is located about two miles west of Glouster on a branch of the T. & O. C. R. R., and is operated by the Courtright Coal Co. D. C. Thomas is superintendent, and James Wheatly is the mine boss. One hundred and sixty miners and sixteen machine men and forty-nine day hands were employed. It is a shaft opening ninety feet in depth to the No. 6 seam of coal. It has been previously worked on the double entry system, but all new work for the past two years is operated on the thrible system, and it is the first mine in this district to adopt this system. Two fans are used as a means of ventilation. The air is divided into two main splits, and one of the divisions is again divided into two divisions affording good ventilation. I made but one visit to this mine on October 12th, and found it in good condition.

PHOENIX NO. 2

Is located one mile west of Glouster on the Buckingham branch of the T. & O. C. R. R., and is operated by the Phoenix Coal Co. Joseph P. Rend is general manager, Lewis Jones is superintendent, and John Jones mine boss. One hundred and forty miners, sixteen cutters and fifty-seven day men are employed. It is a shaft opening into the No. 6 vein of coal which at this point is six feet in thickness. It is worked on the double entry system and is ventilated by means of a fan. The coal is mined and hauled by means of electricity. On October 9th, I found one room on the seventh west entry that needed a breakthrough, and several others that needed timbering. I requested these rooms stopped until the matter was attended to, otherwise the mine was in fair condition.

NO. 4

Is located at the village of Jacksonville, on the T. & O. C. R. R., and is operated by W. P. Rend. Joseph Rend is general manager and D. McBride is superintendent and mine boss. It is a shaft opening one hundred feet deep made into the No. 6 seam of coal, which is here about six feet thick. The mine is worked on the double entry system and is ventilated by the means of two fans. The coal is mined by the use of electricity. One hundred and seventeen fillers, fourteen cutters and forty-one day hands are employed. On August 18th, the mine was found idle and no inspection was made. On August 23d, I found three rooms on the fourth east entry which had been driven ninety feet without breakthroughs. I requested that these be made at once. Otherwise the mine was in good condition.

CRESCENT OR NO. 24

Is located near the village of Jacksonville, on the T. & O. C. R. R., and is operated by the Northern Fuel Co. F. S. Knox is the superintendent, and Edward Lynch is the mine boss. One hundred and fifty miners, sixteen cutters, and forty-one day men were employed. It is a shaft opening one hundred feet deep and is worked on the double entry system and ventilated by means of a fan. It penetrates the No. 6 seam of coal, which is here six feet in thickness. Machines run by electricity are used for mining the coal, which is hauled to the bottom of the shaft by means of an electric motor. On August 24th, I found the mine in good condition, except that three of the rooms lacked breakthroughs. I requested that this should be attended to at once. I also stopped room No. 13 on the west entry until other room could be driven up to furnish said room with air.

NO. 6

Is located at Glouster on the T. & O. C. R. R., and is operated by W. P. Rend. Jos. P. Rend is general manager, and Lewis Jones is superintendent, and Thomas Halley is the mine boss. It is a shaft opening into the No. 6 seam of coal, which is here six feet in thickness. It is worked on the double entry system, and is ventilated by means of two fans. Electricity furnished at the No. 2 mine is used in mining the coal, which is hauled to the south switch of No. 2 doing away with the No. 6 tippie at present. Fifty-five miners, eight cutters and ten day hands were employed. On October 10th, I found the main trap door which conveys the main current of air to the working places without an attendant. I asked the mine boss to have one placed there at once, which was done on the following day. In other respects the mine was in good condition.

GALLIA COUNTY.

CARL NO. 1 AND 2

Are located near Cheshire, a station on the C. H. V. & T. R. R., and are operated by E. L. Carl. They are under the supervision of H. V. Carl and employ twenty-one miners, and eight day hands. The mines consist of two drift openings one on each side of the hill. They are worked on the double entry system and are ventilated by means of fans. They penetrate the No. 8 seam of coal, which at this place is about four feet in thickness. On October 17th, I found the breakthrough at the head of the fourth entry of No. 1 obstructed. I requested these obstructions removed at once. In other respects No. 1 was in good condition. No. 2 was idle, and no inspection was made.

LAWRENCE COUNTY.

BESTER NO. 1

Is located near the city of Ironton, and is operated by the Bester & Scherer Coal Co. It is under the supervision of Joseph Biddle. It employs twelve miners and one day hand. It is a drift opening, penetrating the No. 5 seam of coal, which is three feet in thickness at this place. It is a drift opening and is ventilated by means of a furnace. On October 6th, conditions were good.

LYNN NOS. 1 AND 2

Are located in Bone Hollow near Ironton, and are operated by B. F. Lynn. Stuart Baywell is the mine boss. It employs sixteen miners, and no day hands as the miners push the coal from the interior to the platform. There are two openings into the same hill, worked on the single entry system and ventilated by means of a furnace. They penetrate the No. 5 seam of coal, which is three feet in thickness at this place. On October 6th, I found No. 1 in good condition, but the entry of No. 2 was driven in ahead of the air supply. There were eight men working in this entry. I stopped the work until breakthroughs could be made.

PINE GROVE NO. 3

Is located near the Pine Grove lime mine and is connected with the New Castle Coal mine. It is owned and operated by the same company under the management of E. L. Lambert. It employs twelve miners and ten day hands. It is a drift opening, worked on the single entry system and is ventilated by means of natural pressure. It penetrates an iron ore bed which varies in thickness from six to fourteen inches. This is procured by first removing about three feet of clay which lies immediately

over the ore. On August 21st, I found the mine in fair condition considering the number of men that were at work. I asked the manager not to employ any more men until some plan was devised for furnishing more air.

KELLEY LIME

Is a limestone mine located at Bartell Station on the line of the Iron railway, and is operated by Mrs. Lindsey Kelley who is general manager. It employs eighteen miners and two day hands. It is a drift opening, worked on the single entry system, and is ventilated by natural pressure. The seam of limestone is here seven feet in thickness. The output of this mine is for the purpose of supplying the furnaces at Ironton with limestone. On September 22nd, I found the mine in good condition.

TABLE SHOWING A LIST OF SMALL MINES VISITED.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	Number of Men.	P. O. Address.
Williard Ore	Drift	E. B. Williard.....	2	Steece.
Williard Coal	"	"	2	"
Phillips	"	J. W. Phillips.....	2	Ironton.
Deegans	"	F. Deegans	2	Coal Grove.
"	"	"	2	"
Ben Ryan.....	"	"	3	"
Hanson	"	Thomas Hanson	1	"
Myers Clay	"	Thomas Myers	2	"
Peters Coal	"	J. Peters	1	"
Carey Coal	"	P. Carey	8	"
Lynd Clay	"	B. F. Lynd.....	2	Ironton.
Richey Coal	"	James Richey	2	"
Kistler	"	Chas. Kistler	4	"
Arthur Coal	"	Chas. Arthur	3	"
Breeding	"	W. H. Breeding.....	2	"

MEIGS COUNTY.

PEACOCK

Is located at Pomeroy and is operated by the Peacock Coal Co. Martin Ebersbach is general manager, and W. M. Ebersbach is mine boss. It employs one hundred miners and forty-two day hands. It is a drift opening worked on the double entry system, and has furnace ventilation. It penetrates the No. 8 vein of coal, which is here four feet in thickness. The output is shipped on the Ohio river, except a portion which is used by the salt furnaces near by. When I visited the mine on September 14th, I found it just beginning to resume operations after a suspension of four weeks on account of low water. The mine was in fair condition.

SYRACUSE SLOPE

Is located near Syracuse shaft and is owned and operated by the Syracuse Coal & Salt Co. It is a slope opening worked on the double entry system, and is ventilated by a fan. These mines are connected with intercepting entrances. On September 19th, I found the mine was idle, the miners being on a strike for an advance, and no inspection was made.

COAL RIDGE

Is located in the northeast portion of the city of Pomeroy, and is operated by the Coal Ridge Coal & Salt Co., under the supervision of D. W. Daniels. It employs fifteen miners, and four day hands. It is a drift opening, worked on the double entry system, and is ventilated by natural pressure. It penetrates the No. 8 seam of coal, which is here four feet thick. The coal produced is used by the company's salt furnaces located near by. On September 12th, I found the mine in fair condition. As the hill is now being worked it will soon become exhausted. Preparations are being made for a new opening in the third hill, which when completed, will furnish coal to be hauled through the entries now in use.

CHARTER OAK

Is located in the city of Pomeroy and is operated by the Charter Oak Coal Co. B. J. Malone is general manager, and O. N. Curtis is the mine boss. It employs forty-nine miners, and fourteen day hands. It is a drift opening, penetrating the No. 8 seam of coal which at this point is four feet in thickness. It is worked on the double entry system and has fan ventilation. The coal is shipped on the Ohio river. On September 20th the mine was in bad condition. Five rooms on the second west entry and four rooms on the third west entry were without a sufficient supply of air on account of a block of coal being left in the centre of said entries. I ordered the mine boss to brattice off all the old workings and convey the air to those rooms. I also requested him to make some general repairs as the air supply was not very good throughout the mine.

ROLLING MILL

Is located within the incorporated limits of Pomeroy and is operated by Martin Ebersbach under the supervision of Val. Ebersbach. It employs twenty-two miners, and four day hands. It is a drift opening worked on the double entry system, and has furnace ventilation. The No. 8 vein of coal is pierced and is here four feet in thickness. On September 13th the mine was in general good condition. I requested the mine boss to repair some timbers in the main entrance.

EXCELSIOR

Is located near Rolling Mill mine and is operated by the Excelsior Salt Co., under the supervision of Daniel Deihl. It employs fifteen miners and three day hands. It is a drift opening worked on the double entry system, and has furnace ventilation. The No. 8 seam of coal is pierced at this point. On September 12th I found the mine idle due to the repairs that were being made. On September 19th the mine was working and was in good condition.

SILVER RUN

Is located about four miles west of Middleport on the C. H. V. & T. R. R., and is operated by W. C. Russell who personally operates it. It employs ten miners and two day hands. It is a drift opening, worked on the double entry system, and has fan ventilation. The No. 8 vein of coal is penetrated at this point, and varies in thickness from three to four feet. On October 17th I found the mine almost without air due to the air course which had fallen in, and shut off the furnace from the main workings. I advised the mine boss to drive a cutoff across the faces of four rooms which were in a direct line with the air course. While this was being done I advised the miners to shoot their coal down at the close of each shift.

DABNEY

Is located at Pomeroy and is operated by the Kauff Brothers, Wm. Kauff acting as general manager, and mine boss. It employs ten miners and three day hands. It is a drift opening worked on the double entry system, and has furnace ventilation. It penetrates the No. 8 seam of coal, which is here about four feet in thickness. The product of this mine is used for the purpose of supplying the railroad engines on the C. H. V. & T. R. R. On October 16th, I found the mine in good condition with the exception of a room on the single entry which had broken through into the old works.

SYRACUSE SHAFT

Is located at Syracuse on the Ohio river, and is operated by the Syracuse Coal & Salt Co. L. H. Bridgeman is general manager, and Thomas Mainwaring is the mine boss. This is a shaft opening into the No. 8 seam of coal, sixty feet in depth, and is worked on the double entry system and has fan ventilation. I made but one visit on October 19th, and found the mine idle, the miners being on a strike. No inspection was made.

LIST OF MINES EMPLOYING LESS THAN TEN MEN.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	Number of Men.	P. O. Address.
James Roush	Drift	James Roush	2	Pomeroy.
Logan	"	Martin Ebersbach	2	"
Nailers Run	"	"	2	"
Thomas	"	"	3	"
S. Wager	"	James Wager	3	"
Offler	"	Coney Offler	3	"
Fick	"	Wm. Fick	3	Middleport.
Russell Bros	"	Russell Bros	3	"
Old Mill	"	Powell Heirs	3	"
Diamond	"	Geo. Thompson	3	"
Priode	"	Wm. Burton	3	"
Woodgard	"	J. Woodgard	5	"
Noble Summit	"	N. H. Sales	2	Rutland.
Hogan	"	S. D. Hogan	2	"
Stansbury	"	W. J. Lanning	2	"
Bryne	"	N. Bryne	2	"
Powers	"	L. Powers	4	"
Rupe	"	John Rupe	3	"
Curtis & Knapp	"	Curtis & Knapp	2	Pomeroy.
Bentz	"	G. Bentz	2	"
Venible	"	J. Venible	2	"
Dorist	"	Geo. Bair	2	Minersville.
Karr Bros	"	Wm. Karr	3	"
Williams	"	John Williams	3	"
Roush	"	Eli Roush	3	"
WASHINGTON COUNTY.				
Felix	Slope	Webster & Blake	4	Beverly.
Lyons	"	Barker & Ross	4	Coal Run.

REPORT OF DAVID B. WILSON.

Inspector of the Third District from November 15, 1898, to November 15, 1899.

Hon. R. M. Haseltine, Chief Inspector of Mines, Columbus, Ohio.

SIR: — I herewith respectfully submit my second annual report of the mines of the counties of Perry, Muskingum, Morgan and Noble, which embrace the Third Mining District of the State in the four counties which compose this District. I have visited two hundred and forty mines, and by order of the Chief Inspector of Mines, I visited five mines in Athens County, making a total of two hundred and forty-five mines inspected by me during the year just closed. Of these one hundred and eighty-six were visited once, fourteen twice, seventeen three times, seven four times, eleven five times, three six times, and two seven times, making an aggregate of three hundred and eighty visits. I also sealed forty-two oil wells, which occupied a great portion of my time away from the mines. In my judgment there should be a man appointed in each oil district to do his work.

The permanent improvements may be classified as follows: four furnaces built, one fan erected, five air shafts sunk, two second openings made. Eighteen mines remained suspended, fifteen were abandoned, and fourteen new mines were opened. During the year ten sets of scales were tested, all of which were in Perry County; eight sets were found to weigh correctly, and two sets were found so badly out of order that the company was compelled to send for an expert scale man to adjust them. I investigated the cause of the death of Edward B. Blake, who died in Werners No. 3 Mine at Zanesville, Ohio. The coroner's verdict showed that he died of neuralgia of the heart. I feel very happy to report that there were no deaths arising from accidents in any of the mines in my district during the year just closed. I am also happy to say that conditions have changed for the better and many mines that were crowded with men a year ago cannot get men to fill their orders. The only thing that has been unfavorable to the miners has been the scarcity of railroad cars to take the coal to market.

I desire to acknowledge the very courteous treatment that I have received at the hands of the miners and operators throughout my District. I also wish to thank you for the many favors received at your hands during the year just closed. I am,

Very truly yours,

DAVID B. WILSON,

Inspector of the Third District.

Corning, Ohio, November 15, 1899.

PERRY COUNTY.

MINE NO. 8

Is located on the Toledo & Ohio Central R. R. and is the property of the Sunday Creek Coal Co. C. C. Sharp is superintendent, and David Cook is the mine boss. It is a shaft opening, sixty-five feet deep made into the No. 6 seam of coal which is here from ten to twelve feet in thickness. The mine is operated on the double entry system and is ventilated by the means of two fans. One hundred and twenty miners, twelve machine men, twenty-two inside and twenty outside day men are employed. The coal is hauled from the interior of the mine to the shaft bottom by means of a tail rope. This mine remained suspended for several months during the first part of the year 1899, and when the mine started in July it was with machines in the place of picks, a Morgan Gardner plant having been installed. On my first visit after the mine had resumed operations I found the air deficient, and that the air was leaking through the brattice on the main entry. I ordered them reclayed and several doors repaired which was complied with. On my next visit the air was still weak in the northern part of the mine. Upon examination I found several thousand feet of air going into the old No. 13 mine, and escaping up the shaft. I ordered the shaft to be covered on the top which was done in a few days, and the mine found in better condition. This is an old mine and difficult to ventilate, as the air is compelled to travel a great distance, and it is a difficult matter to keep the brattices tight.

MINE NO. 21

Is located near Carrington on the Glouster branch of the T. & O. C. R. R., and is the property of the Sunday Creek Coal Co., and is under the same management as the No. 8 mine, with John McMillen as mine boss. It is a slope opening, worked on the double entry system, and ventilated by a fan. It penetrates the No. 6 seam of coal which is here from six to ten feet in thickness. One hundred and fifty miners, thirty inside and twenty outside day men are employed. The coal is hauled from the interior of the mine to the tipple by means of two electric motors. This mine has a very poor roof, and is very difficult to manage, consequently is never in first class condition. There is plenty of air in all the entries, but owing to the poor roof in the rooms the breakthroughs are sometimes irregular, and in some places the air is not so good especially when they shoot at dinner time. I ordered a door put up on the third east entry, between the two face entries. There were four men working three hundred feet from the entry and no door to send air into the face entries. On my next visit I found a door put up according to my orders.

REDS NO. 3

Is located at Rendsville on the T. & O. C. R. R., and is owned by the W. P. Rend Co. Lewis Jones is the superintendent, and William Dennis

is the mine boss. It is a shaft opening, thirty-five feet in depth and penetrates the No. 6 seam of coal which at this point is twelve feet in thickness. It is worked on the double entry system and is ventilated by the means of a fan. Ten machine men, twenty inside and eighteen outside day men are employed. This mine stood suspended from November 1898 to July 1899. During that period they installed an electric machine plant and the coal is now mined by the Morgan Gardner machines. When mined by pick the mine was in a fair condition, the men only firing shots once a day, but after the machines were put to work they shot all through the day, and the air current is not strong enough to carry the smoke away as quickly as it should. However, the bosses generally comply with all improvements ordered, and in a short time it will be in better condition. On September 5th I ordered a door to be hung on the third right entry between the north face entries, and one on the 7th and 8th west entries, also several brattices, and on October 11th I found everything as ordered which made quite an improvement. I also tested the scales on that date and found them weighing correctly.

CONGO NO. 1

Is located at Congo Station on the C. S. & H. R. R., and is operated by the Congo Coal Mining Co. of Columbus, Ohio. Samuel Pascoe is the superintendent, and J. W. Taylor is mine boss. This is a shaft opening forty-three feet in depth, and penetrates the No. 6 seam of coal which at this point is from nine to fourteen feet in thickness. It is worked on the double entry system and has fan ventilation. The coal is mined by machinery and is hauled from the interior of the mine by a Jeffrey motor. One hundred and fifty loaders, twelve pick miners, fourteen machine runners, forty-two inside and twenty outside men are employed at this mine. I visited this mine seven times during the year, and always found it in very good condition. On August 10th, I tested the scales and found them weighing correctly.

CONGO NO. 2

Is located at the same place and is operated by the same company. Samuel Pascoe is superintendent, and Thomas Stiff was the mine boss, but has been succeeded by Wm. Turnbull. It is a shaft opening fifty-three feet in depth, worked on the double entry system and is ventilated by a fan. It is an opening which penetrates the No. 6 seam of coal, which is here from twelve to thirteen feet in thickness. One hundred and sixty loaders, twelve pick miners, sixteen machine runners, forty inside and twenty outside men are employed. I visited this mine six times during the year. I am sorry to say that I had a great deal of trouble to get the room breakthroughs cut at the proper distance. It would appear that some mine bosses endeavor to make a name for themselves by breaking the

law, and trying to force men to work in places where they would not work themselves. I also had trouble in getting trappers stationed at the doors. I was forced to solicit aid of the superintendent in order to have my suggestions carried out. On August 10th I tested the two sets of scales, and found them weighing correctly.

MINGO MINE.

Is located at Hemlock on the C. S. & H. R. R., and is the property of the same company as the Congo Mines. Samuel Pascoe is the superintendent and Charles Call is the mine boss. It is a shaft opening twenty-one feet in depth into the No. 6 seam of coal which is here six feet in thickness. It is worked on the double entry system and is ventilated by means of an open fire. Thirty miners, four machine men, five inside and five outside men are employed. I visited this mine six times during the year. On three of the visits I found the mine idle and no inspection was made. On May the 4th two doors and one brattice was ordered put up which was done at once. There is a very bad roof to contend with at this place, and it is impossible to keep it in as good condition as it should be. Their territory is limited owing to a fault surrounding the work, and it appears as if it would soon be a thing of the past.

XX MINE

Is located at Shawnee on the C. S. & H. & B. & O. R. R., and is operated by Taylor and Williams of Columbus, Ohio. Daniel Jenkins is superintendent and John Scanlon is the mine boss. It is a drift opening made into the No. 6 seam of coal and is ventilated by natural ventilation. Forty-five miners, five inside and five outside day men are employed. They are drawing the pillars and the mine will soon be finished unless they can get the water out of the south end of the mine where there is some solid coal.

HOBO OR SUPERIOR

Is located one mile south of New Hamburg on the Glouster branch of the C. S. & H. R. R., and is operated by the Superior Coal Co. L. C. Tippet has entire supervision. It is a drift opening worked on the double entry system, and is ventilated by a furnace. It penetrates the No. 7 seam of coal which is here four and one half feet in thickness. Thirty miners, two machine men, three inside and one outside man are employed. I visited this mine six times during the year. On November 21st I found a small electric plant at work which had been put in since my last visit. On December 2nd I ordered a door put on the mouth of the first north entry in order to send the air in to the men working beyond that point. The door was put up and on my next visit I found the mine in fair condition. It looks as if the coal will be cut out by a fault which they are discovering in all directions. During the summer months they employed from four to six men only.

NO. 20 HEMLOCK

Is located at Hemlock on the C. S. & H. R. R., and is operated by George Cook and Son. George Cook has entire supervision. It is a slope opening worked on the double entry plan and is ventilated by a fan. It is an opening into the No. 6 seam of coal which is here six feet in thickness. Thirty miners, five inside and five outside day hands are employed. When I visited the mine on March 30th they had just begun operations after a suspension of three months. I found the mine in a very poor condition. I ordered one door put up and four stoppings built, and on April 10th I found it in a somewhat better condition, but still deficient in air. On June 15th I found them drawing pillars close to the bottom of the slope, having been drowned out with water along the main entry. On September 12th I found the mine suspended.

PEACOCK MINE

Is located at Hemlock on the C. S. & H. R. R., and is owned by Roberts and Davis. Evan Roberts has entire supervision. It is a shaft opening twenty feet in depth, and is worked on the double entry system and has furnace ventilation. The seam of coal here penetrated is the No. 6 and is six feet in thickness at this point. Thirty miners, three inside, and three outside day men are employed. I visited this mine six times during the year. At four of these visits I found the mine idle, and no one around, consequently no inspections were made. On September 12th I found that they were almost surrounded by a fault and getting a piece of coal wherever they could find it. The furnace had outlived its usefulness, and they now have to rely upon natural ventilation. Owing to the irregularity in which the mine has been worked it is almost impossible to confine the air in any one place. It is only a question of time until it will be worked out. On November 13th I tested the scales, and found them weighing correctly.

FURNACE NO. 2

Is located at Shawnee on the B. & O. & C. S. & H. R. R. E. W. Lewis has entire supervision. It is a drift opening worked on the double entry system, and is ventilated by a large fire basket. It penetrates the No. 6 seam of coal which is here five feet in thickness. Forty miners, five inside and two outside day men are employed. I visited this mine four times two of which the mine was found idle. No inspection was made. On December 16th the mine was found in good condition, and on August 2nd I found a good many men drawing pillars and the mine in good condition.

SHAWNEE VALLEY

Is located at Shawnee on the B. & O. and C. S. & H. R. R., and is operated by Maynard Bros. of Columbus, Ohio. Joseph Humphrey is the mine boss. It is a drift opening worked on the double entry system and

has furnace ventilation. It penetrates the No. 6 seam of coal which is here ten feet in thickness. Forty miners, three inside and three outside men are employed. I visited this mine four times during the year. On April 14th I tested the scales and found them correct. They are now engaged in drawing the pillars that have been standing for twenty years. The mine is in fair condition for a mine of this kind.

UPSON NO. 1

Is located at Shawnee on the C. S. & H. and B. & O. R. R., and is operated by the Upson Coal and Mining Co. Rees E. Williams has entire supervision. It is a drift opening worked on the double entry system and is ventilated by a furnace. The No. 6 seam of coal is here penetrated and is ten feet in thickness. One hundred miners, six machine men, twenty-one inside and seventeen outside day men are employed. On December 19th I found the mine in good condition. On April 17th I found two doors and several breakthroughs out of repair, and ordered the defects remedied. On August 14th I found that my previous order had been complied with and the mine was in fair condition.

IRON POINT NO. 1

Is located at Shawnee on the B. & O. R. R., and is operated by David Richards who has entire supervision. It is a drift opening worked on the double entry system and is ventilated by a fire basket. The No. 6 seam of coal is here penetrated and is five feet in thickness. Twenty-five miners, three inside, and three outside day men are employed. This is a lease mine and the company will do nothing to help the men that have leased. It is in fair condition but not as good as it should be. It has been idle the greater part of the summer.

NO. 3 OR ROCK RUN

Is located on the Rock Run branch of the B. & O. R. R., and is the property of the Columbus & Hocking Coal and Iron Co. of Columbus, Ohio. E. B. Pedloe is the superintendent, and Hugh Dalrymple is the mine boss. This is a drift opening worked on the double entry system and is ventilated by means of a fan. It penetrates the No. 6 seam of coal which varies in thickness from ten to twelve feet. One hundred and fifty-six miners, twelve machine men, twenty-one inside and eighteen outside day men are employed. On December 14th and May 22nd I found this mine in good condition, and on August 15th and September 14th I found the mine idle, and made no inspection. On September 27th I tested the scales and found them so badly out of order that I could do nothing with them.

NO. 3 A

Is located in close proximity to No. 3 and is owned, operated and officered by the same company as No. 3. It is a drift opening worked on the double entry system, and is ventilated by means of a fan. It penetrates the No. 6 seam of coal which is here from ten to twelve feet in thickness. One hundred and fifty miners, twelve machine men, fifteen inside and eighteen outside men are employed. On December 15th found a new air shaft sunk close to the face of workings which gave the ten pure air, as well as increasing the amount. These mines are always in good condition. The management is good and they deserve credit for it. These mines were idle the greater portion of the summer. They had plenty of orders, but could get no cars to take the coal to the market.

NO. 69

Located on the Rockrun branch of the B. & O. R. R., and is operated by Call, Hughes & Co. of New Straitsville, Ohio. Edward Call has the supervision. This is a drift opening worked on the double entry system and is ventilated by a fire basket. The No. 6 seam of coal is penetrated which at this point is ten feet in thickness. Ten miners are employed. The mine is in good order.

DICKSON SOUTH SIDE

Located at Dickson on the Shawnee branch of the B. & O. R. R., and operated by J. B. Hamilton of Columbus, Ohio. H. R. Larimer has the supervision. It is a drift opening worked on the double entry system and is ventilated by a furnace. The No. 6 seam of coal is here penetrated and at this point is three feet in thickness. Thirty miners, four inside and four outside day men are employed. They are drawing pillars and when visited on December 7th and August 22nd the mine was found in good condition. The mine has been suspended a portion of the year.

BRISTOL NO. 1

Is located at Bristol Junction on the Shawnee branch of the B. & O. R. R., and is operated by the Bristol Coal Co. S. W. Butt is superintendent and G. C. Butt is mine boss. It is a drift opening worked on the double entry system and is ventilated by means of a fan. The No. 6 seam of coal is penetrated here and is three feet in thickness at this point. On February 27th I ordered several breakthroughs repaired on the west entries, also a door placed between the two entries which was done in a few days. On August 22nd I found the old entries abandoned, and all the men working on the new entry, and everything was in first class condition. The mine lost a good deal of time during the summer months.

NO. 5 MINE

Is located at New Straitsville on the C. H. V. & T. R. R., and is operated by the Troy Coal Co. James Daugherty has full supervision. It is a drift opening made into the No. 6 seam of coal which is here ten feet in thickness. Thirteen miners, and one day hand find employment, the work in this mine being all pillar work.

NO. 37 NORTH WEST

Is located near New Straitsville on the C. H. V. & T. R. R., and is operated by the Essex Coal Co. Calvin Essex is superintendent and H. H. Essex is the mine boss. It is a drift opening worked on the double entry system and has furnace ventilation. It penetrates the No. 6 seam of coal which at this point is ten feet in thickness. Fourteen miners, one inside and one outside day man are employed. On August 15th I found the mine in first class condition. A great deal of time was lost during the summer months.

NO. 49

Is located at New Straitsville on the C. H. V. & T. R. R., and is operated by Alexander & Co., and is managed by William Carmichel. It is a drift opening worked on the double entry system and has natural ventilation. It penetrates the No. 6 seam of coal which is here about ten feet in thickness. Ten miners, one inside and one outside man are employed. On August 24th it was found in good condition.

NO. 139

Is located near New Straitsville on the C. H. V. & T. R. R., and is operated by George Howe & Son, George Howe having full control. It is a drift opening made into the No. 6 seam of coal which is here ten feet in thickness and has natural ventilation. Fifteen miners are employed. The work in this mine is all pillar work and when visited August 15th it was found in good condition.

BRIAR HILL

Is located at Prosper Station on the C. S. & H. R. R., and is owned and operated by J. G. Underwood who has full supervision. It is a slope opening worked on the double entry system, and is ventilated by a furnace. It penetrates the No. 6 seam of coal which is here three feet eight inches in thickness. Fifteen miners, one inside and two outside day men were employed. On December 13th I found the mine in good order. On April 5th it was found in about the same condition, and on May 8th I found one door and two brattices out of repair, and ordered them remedied at once, which was done. On August 1st and 18th I found the mine idle. Scales were tested on August 1st and found correct. On September 18th the mine was found in good condition.

GREEN HOLLOW NO. 1

Is situated in Green Hollow on the C. S. & H. Railway, and is operated by the Wallace Coal Co. Wm. Wallace is superintendent, and Edward Moore is mine boss. It is a drift opening into the No. 5 seam of coal, which is here from three to four feet in thickness, worked on the double entry system, and is ventilated by a furnace. On February 6th the mine was found in good condition. On May 26th the mine was suspended, but on September 6th it was again in operation, and in fair condition. During the summer months the mine was idle.

CHESTNUT RIDGE

Is located one mile north of Redfield, on the C. S. & H. Railway, and is operated by A. P. Simons who has entire supervision. It is a drift opening worked on the double entry system, and is ventilated by means of an open fire. It penetrates the No. 5 seam of coal which is here from three to four feet in thickness. Eighteen miners, two inside and one outside day men are employed. On February 8th the mine was found in fair condition, except in some places where the main entry was wet and muddy. It is a difficult matter to keep this mine in a good condition owing to the amount of water, and the bottom being soft. On May 26th the mine was found idle, and on September 6th they were drawing pillars, and opening a new mine south of the old one.

CHESTNUT HILL NO. 2

Is located one mile north of Redfield on the C. S. & H. R. R., and is operated by Jas. Coyle and Son. G. W. Coyle has entire supervision. It is a drift opening worked on the double entry system and is ventilated by an open fire. It penetrates the No. 5 seam of coal which varies in thickness from three to four feet. Eighteen miners, two inside and one outside day men are employed. On February 8th the mine was found idle, and no inspection was made. On May 26th two brattices and a door that were taking air were found and ordered them repaired. On September 6th they found them drawing the pillars on the main entry and plenty of air. This mine will soon be abandoned preparatory to opening a new one.

LYONSDALE

Is located at the tunnel two miles west of McLuney on the C. & M. Railway, and is operated by Michael Meenan who is also superintendent. J. J. Meenan is mine boss. It is a drift opening working on the double entry system, and has furnace ventilation. It penetrates the No. 6 seam of coal, and is three feet and a half in thickness at this place. Twenty-five miners, two inside and two outside day men are employed. I visited this mine three times and found it in first class condition each time.

BLOCK OR NORTH SIDE

Is located one mile west of McLuney on the C. & M. V. R. R., and is operated by Tague and Bennett. Charles Tague is superintendent, and Lon Tague is the mine boss. This is a drift opening, worked on the double entry system, and has furnace ventilation. It penetrates the No. 6 seam of coal which is here three and one half feet in thickness. Forty-four miners, four inside and four outside day men are employed. I visited this mine five times during the year and found it in fair condition at each visit. On March 6th I tested the scales and found them correct.

BEECH GROVE NO. 6

Is located at McLuney on the C. & M. V. R. R., and is the property of I. H. Jones of Zanesville, Ohio. It is now operated by H. J. Knoedler, who is superintendent, and Marion Young as mine boss. It is a drift opening worked on the single entry system and has furnace ventilation. It penetrates the No. 6 seam of coal which at this point is three and one half feet in thickness. Forty miners, four inside, and two outside day men are employed. On December 6th I found the mine in fair condition, and on April 6th it was found suspended, little work having been done all summer. On November 14th I found the mine in operation, and in a very good condition.

ZANESVILLE NO. 2 OR KEYSTONE

Is located near Crooksville on the C. & M. V. Railway, and is operated by the Zanesville Coal Co. N. W. Spencer is superintendent, and Thomas Opie is mine boss. It is a drift opening worked on the double entry system, and is ventilated by means of a fan. It penetrates the No. 6 seam of coal which is here three and one half feet in thickness. One hundred and sixteen miners, eleven inside and six outside day men are employed. On February 14th the mine was found in good condition. On May 3rd the air was found to be a little weak due to the furnace being too small for the large territory opened. On June 12th it was found idle, but they were putting in a fan and on July 14th I found the fan running and the mine in first class condition.

LOWER OR HORN

Is located near Crooksville on the C. & M. V. R. R., and is operated by Tague Bros. & Co. A. P. Tague is superintendent and E. J. Tague is mine boss. It is a drift opening worked on the double entry system, and is ventilated by means of an open fire. It penetrates the No. 6 seam of coal which is here from three to three and one-half feet in thickness. Seventy miners, five inside and three outside day men are engaged. On February 4th the mine was found in good condition, but on May 3rd

I found two stoppings leaking air and ordered them repaired, otherwise the mine was in good condition. On June 12th and July 14th it was found idle, and no inspection was made, but on July 26th the mine was found to be in very good condition.

UNION NORTH SIDE

Is located one mile and a half east of Crooksville on the C. & M. V. R. R., and is operated by the Ohio Coal and Cement Co., of Columbus, Ohio. David Mathews is superintendent, and Charles Conn is the mine boss. It is a drift opening worked on the double entry system, and has furnace ventilation. It is an opening into the No. 6 seam of coal and is three and one half feet in thickness at this point. Seventeen miners, one inside and one outside day men are employed. On May 17 it was found idle, and no inspection was made, and it remained suspended for some time.

NEW CRESCENT

Is located about one mile and a half from Roseville on the C. & M. V. R. R., and is operated by the New Crescent Mining Co. of Roseville, Ohio. H. H. Guy is superintendent, and Wm. Reed is the mine boss. It is a drift opening worked partly on the double entry system and partly on the single entry system, and is ventilated by means of a furnace. It penetrates the No. 6 seam of coal which is four feet in thickness at this point. Forty miners, four inside and two outside day men are employed. On December 5th the mine was found in good condition. They were entertaining the idea of changing to single entry system, which was done with the result that usually takes place in a case of this kind. On my next two visits the mine was not in as good condition as formerly. That portion of the mine is nearing completion and they are now working in their new entries. I am of the opinion that they will adopt the double entry system as a mode of ventilation.

FANNY

Is located at Shawnee on the C. S. & H. R. R., and is operated by Taylor, Williams & Jenkins. D. C. Jenkins is superintendent and Edward Abram is mine boss. It is a drift made into the No. 6 seam of coal which is here from seven to ten feet in thickness. It is worked on the double entry system and has natural ventilation. Forty miners, two inside and one outside day men are employed. On December 8th the mine was found in good condition, and on March 29th, May 17th, August 4th and November 2nd was found idle and no inspection was made. The scarcity of cars was the cause of the idleness.

NO. 12 OR SPRING VALLEY

Is located in Sulphur Spring Hollow on the Buckingham branch of the T. & O. C. R. R., is operated by the New Hamburg Coal Co., of Corning. Fred Miller was superintendent, and Geo. Hodgeson is the mine boss. It is a slope opening worked on the double entry system and ventilated by an open fire and exhaust steam for a pump. It penetrates the No. 7 seam of coal which is here seven feet in thickness. Eighty-five miners, eight machine men, thirteen inside and eight outside men are employed. On February 15th I found the air deficient at face of west entries, I went back and examined all the breakthroughs and found they had been built up with bone coal, and the buildings had settled down and the air was leaking over the top of the buildings. I ordered them to repair them at once which they did, and on my other three visits I found the mine in good condition.

NO. 13 SOUTH SIDE

Is located near New Hamburg on the Buckingham branch of the T. & O. C. R. R., and is operated by the New Hamburg Coal Co. Fred Miller is superintendent, and John Clark is the mine boss. It is a drift opening worked on the double entry system and has furnace ventilation. It penetrates the No. 7 seam of coal which is here five feet in thickness. Forty miners, four inside and two outside day men are employed. On November 19th they had broken into the old works, and part of the air was going out that way. I ordered those places filled up in order to send the air into the entries where the men were working. On December 12th I found my previous orders complied with and mine in good order. On March 13th I found two doors out of repair and ordered them repaired, and also some slate cleaned out of the return stairway and stack air shaft built higher which was done. I tested the scales on January 23rd and found them correct.

NO. 18

Is located one mile north of Rendville on the T. & O. C. R. R., and is owned and operated by the Job Coal Co. of Rendville. Wm. Job is manager and John Hickman is the mine boss. It is a slope opening worked on the double entry system and is ventilated by exhaust steam from a pump. It penetrates the No. 6 seam of coal which is from seven to eight feet in thickness at this point. Nineteen miners and six outside day men are employed. This is a machine mine and on October 11th the men were working by the day. The coal is intended to be hauled out of the slope by an endless chain. The coal is of good quality, and with proper management this will be a good mine.

GREEN HOLLOW NO. 4

Is located at Green Hollow near Redfield, on the C. S. & H. R. R., and is operated by the Saltillo Coal Co. of Redfield, Ohio. Samuel Steel has entire supervision. It is a drift opening, worked on the double entry system and ventilated by an open fire. Ten miners are employed. I visited this mine three times and found it in good condition at each visit.

NO. 53 A

Is located on the Rock Run branch of the B. & O. R. R., and is operated by Ambrose Gibbs who has entire supervision. It is a drift opening and has natural ventilation. The No. 6 seam of coal is here penetrated and is ten feet in thickness. Thirteen miners, and one inside day man are employed at this mine. When visited on January 27th it was found in fair condition. On September 14th it was found idle and no inspection was made.

OHIO CLAY NO. 4

Is located at Shawnee and is the property of the Ohio Mining and Mfg. Co. of Shawnee, Ohio. W. D. Richardson is manager, and Gomer Davis is the mine boss. Twelve miners, one inside and two outside day men are employed. It is a shaft opening eighty feet in depth and is ventilated by a fan. It was visited December 21st and August 14th and found in fair condition.

LIST OF MINES EMPLOYING LESS THAN TEN MEN.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	Number of Men.	P. O. Address.
Butlers No. 2.....	Drift	John Butler	8	New Lexington.
Carney	"	Michael Carney	1	" "
Irvin	"	John Farr	1	" "
Rodger No. 3.....	"	George Parker	6	" "
Hoops	"	Pearl Smith	2	" "
John Green	"	John Green	1	Somerset.
Flowers No. 2.....	"	Lewis Flowers	3	"
Yost No. 2.....	"	H. A. Yost	1	"
Fink No. 2.....	"	N. E. Fink.....	2	"
Joshua Greene	"	Joshua Greene	1	"
Tom Green	"	Thomas Green	5	"
Lewis Green	"	Lewis Green	3	"
Sanders	"	George Sanders	1	"
Jesse Green	"	Jesse Green	2	"
No. 5	"	Troy Coal Co.....	8	New Straitsville.
No. 47.....	"	M. Wilson & Co.....	7	" "
Black Diamond No. 2.	"	Black Diamond Coal Co.	7	" "
No. 39	"	T. J. Davis.....	1	" "
Powel or No. 9.....	"	Samuel Emerick	1	" "
O'Donnell No. 35.....	"	James O'Donnell	8	" "
No. 77	"	Stewart Coal Co.....	6	" "
No. 7	"	White & Thompson.....	8	" "
No. 75	"	Stalter & James.....	1	" " Susp'd.
Cox No. 11.....	"	Matthew Cox & Co.....	4	" "
No. 51	"	Geo. Long & Co.....	4	" "
Spencer & Haselton...	"	Spencer & Haselton.....	1	" " Susp'd.
Ohio Coal No. 1.....	"	Ohio M. & Mfg. Co.....	6	Shawnee.
Dew	"	Leshon Coal Co.....	4	Burr Oak.
Crooksville	"	R. D. Brown.....	3	Crooksville.
Millertown	"	West Stalmsmith	2	Corning.
Gordon	"	Harvey Robinson	2	Rose Farm.

MUSKINGUM COUNTY.

CHESTNUT VALLEY NO. 1

Is located near the Marietta road near Zanesville, Ohio, and is owned and operated by Michael Fisher who is also the superintendent Wm. Ray is the mine boss. It is a drift opening worked on the single entry system, and has furnace ventilation. It penetrates the No. 6 seam of coal, and is three feet in thickness. It has in its employ fourteen miners. On March 22nd I found the air weak and ordered the mouths of all the old rooms filled up in order to send the air where the men were working. The boss consented to do so at once. On July 10th I found the men working in a piece of coal that had been left close to the mouth of the mine, and the air in the mine was found in good condition.

PRINCESS

Is located in Coal Hollow near Sealover station on the Z. & O. R. R., and is owned by Perry Smith. John Winefordner is superintendent and J. F. Berkemer is the mine boss. It is a drift opening worked on the double entry system and has furnace ventilation. The No. 7 seam of coal is here penetrated, and is from four to six feet in thickness. Thirty miners, five inside and three outside day men are employed. On December 28th, I found the air in a very poor condition, and ordered the brattices repaired. They had begun a single entry with the expectation of striking an old opening that was not far from daylight. The entry men were one hundred and fifty feet ahead of the air, and I ordered them to stop until air was brought within a lawful distance of the face. On January 10th they were endeavoring to better the conditions but all they could seem to do did not better them. On April 13th I found the mine in about the same condition, and still they had not succeeded in getting the entry through. On May 11th it was still in the same condition, and I ordered the men to stop unless they could get the entry through in a few days. On July 13th, they were making preparations to start a new mine which they had opened.

GARRETS

Is located one mile south of Sealover station on the Z. & O. R. R., and is operated by Joseph Garrett who is also superintendent. A. E. Garrett is the mine boss. It is a drift opening into the No. 6 seam of coal which is here two and one-half feet in thickness. It is worked on the single entry system and has furnace ventilation. Fourteen miners, one inside and one outside day man are employed. On January 12th, it was found in a good condition. On May 11th and July 12th, it was found idle, and no inspection was made.

DIAMOND NO. 2

Is located near Romine station on the B. Z. & C. R. R., and is operated by C. W. Joslin of Zanesville, Ohio. H. N. Hawk has entire supervision. It is a drift opening into the No. 7 seam of coal which is here six feet in thickness. It is worked on the double entry system and has furnace ventilation. Twenty miners, three inside and two outside men are employed. I visited this mine twice during the year and found the mine in good condition.

CANNELLVILLE

Is located at Cannelville on the C. S. & H. R. R., and is operated by John McNally who is also superintendent, and Richard Andrews is the mine boss. It is a drift opening into the No. 6 seam of coal, which is here four feet in thickness. It is worked on the double entry system and has furnace ventilation. Fifteen miners, two inside, and one outside day men are employed. On January 4th I found the air weak at

the face of the workings and ordered the ashes cleaned around the furnace and on May 9th, I found the mine in fair condition. On September 25th I found the men had changed to the left side of the mine and the mine in good condition.

MAYNARD

Is located near Cannelville on the C. S. & H. R. R., and is operated by the Maynard Bros, Columbus, Ohio. Bruce Mauk is the superintendent, and Charles Anderson is the mine boss. It is a drift opening worked on the double entry system, and has furnace ventilation. It penetrates the No. 6 seam of coal, which is four feet in thickness at this point. Thirty-five miners, three inside and three outside day men are employed. I visited this mine three times during the year and found it in good condition. My visits would have been more frequent in that section of the mining district, but the mines did very little work during the summer months.

GRANGERS

Is located one-half mile from Buckeye station on the Z. & O. R. R., and is operated by the Siler Coal Co., of McConnelsville, Ohio. John Winefordner is the superintendent and mine boss. It is a drift opening worked on the double entry system, and has furnace ventilation. It penetrates the No. 6 seam of coal, and is here three and a half feet in thickness. Thirty-five miners, three outside, and three inside day men are employed. On January 9th the mine on the north side was in good condition, but on the south side the air was weak. I ordered several breakthroughs repaired in order to carry the air to the working faces, and on my next visit the mine was found in good condition.

BLUE ROCK

Is located near Stone station on the Z. & O. R. R. and is operated by the Blue Rock Coal Co. E. J. Souders has entire supervision. It is a slope opening worked on the double entry system and has furnace ventilation. It penetrates the No. 7 seam of coal which is here four feet in thickness. This mine was visited twice during the year, and was found in a very poor condition for air on both visits. I ordered the stoppings all reelayed, but it did not seem to do much good. The furnace and the air shaft are both too small and are overcome by friction. The mine was idle a great part of the summer, which was the cause of the shortage in visits.

NEFF OR DEWEY

Is located near Sealover station on the Z. & O. R. R., and is operated by the Dewey Coal Co. J. L. French has full supervision. It is a drift opening worked on the single entry system and has furnace ventilation. The No. 6 seam of coal is penetrated which at this point is three feet in thickness. Twelve miners are employed at this mine. When visited on January 9th, it was found in good condition.

WERNERS NO. 3

Is located near the Marietta road one mile from Zanesville and is owned by Wm. A. Werner, who is also superintendent. James Fouts is the mine boss. It is a shaft opening eighty-five in depth to the No. 6 seam of coal, which is here three feet in thickness. It is worked on the double entry system and is ventilated by a fan. Seventeen miners were employed. On March 23rd, the mine was found in good condition except one room in which I ordered two breakthroughs filled up to give the men air. On July 10th, they had changed the fan to a downcast and the mine was in very good condition. On July 28th, I was called to this mine to investigate the cause of the death of Edward D. Blake who died in the mine. On investigation I found that he died from neuralgia of the heart.

LIST OF MINES EMPLOYING LESS THAN TEN MEN.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	Number of Men.	P. O. Address.
Walnut Hill	Drift	W. H. Blaney	8	Dillon.
Werners	"	W. A. Werner	2	Zanesville.
Harpers 4 Foot.	"	Eben Harper	5	"
Harpers No. 3.	"	"	8	"
Harpers 3 Foot.	"	Charles A. Barton.	6	"
Bealer	"	Lewis Harper	3	"
Lewis Harper	"	John McNulty	2	"
German	"	"	2	"
Hoff	"	Charles L. Shultz.	2	"
Shultz	"	W. H. Weller.	8	"
Weller	"	"	1	"
Weller No. 2.	"	A. D. Morrison.	4	"
East Hill	"	Michael Fisher	2	"
Chestnut Valley No. 2.	"	Robert Tumblin	6	"
Hildreth	"	August German	2	"
Sealover	"	J. R. Griener	3	"
Griener No. 1.	"	"	"	Abandoned.
Griener No. 2.	"	John Lutz	5	"
Moores No. 6.	"	George L. Lehew.	1	"
Lehew	"	Wm. Uphold	2	"
Smith No. 1.	"	Abe Emery	2	"
Emery No. 2.	"	"	2	"
Emery No. 1.	"	J. Severance	2	Abandoned.
Moores 3 Foot.	"	Wm. Dixon	2	"
Rowdock	"	D. L. Hopkins.	3	"
Hopkins	"	James Alexander	3	"
Alexanders	"	Joseph Purcell	3	"
Wheeler No. 2.	"	Wm. L. Combs.	3	"
Wheeler No. 1.	"	Fowler & Spinks.	3	"
Spinks	"	Joseph Bridwell.	6	"
Bridwell	"	Blockson & Swank.	5	"
Smith No. 2.	"	Wm. Howser	5	"
Kings No. 2.	"			

LIST OF MINES EMPLOYING LESS THAN TEN MEN—Continued.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	Number of Men.	P. O. Address.
Temple	"	Wm. H. Temple.....	"	"
Yinger	"	Frank Leary	"	"
Wallwork No. 1.....	"	Bridwell & Barton.....	"	"
Richards	"	"	"	"
Niebel	"	C. J. Niebel.....	"	"
Ashmore	"	Griener Bros	2	"
Culp	"	H. L. Culp	3	"
Andrews	"	John W. Andrews.....	"	"
Spence	"	Edward Spence	"	"
Potts No. 2.....	"	Arthur Potts	"	"
Miles No. 1.....	"	Joseph Miles	1	"
Miles No. 2.....	"	"	"	"
Fisher No. 2.....	"	C. W. Fisher.....	2	"
Moore's No. 1.....	"	J. W. Foutch.....	"	"
Henke	"	D. E. Henke.....	1	"
Oak View No. 2.....	"	J. A. Detenbeck.....	6	"
Buckeye	"	Buckeye Press B. Co....	7	"
Kennedy	"	J. W. Severance.....	"	"
Wallwork No. 2.....	"	George Harper	2	"
Gourley	"	Eli Gourley	3	Frazeyburg.
McCann No. 1.....	"	Zed Lindell	2	"
McCann No. 3.....	"	John Harper	3	"
Knights or Neathers (No. 1)	"	Frank Cullins	2	"
Ashcraft.....	"	Jasper Ashcraft	"	"
Neathers No. 2.....	"	James Knight	"	"
Vickers	"	Bagent & Rose.....	6	"
Norman	"	Henry Norman	2	"
McCann No. 3.....	"	Lockard & Denman.....	4	"
Baughman No. 1.....	"	John G. Baughman.....	1	Roseville.
" No. 2.....	"	"	2	"
Bruce No. 2.....	"	Benj. Stoneburner	2	"
Rider	"	Alva Rider	3	"
Wigton.....	"	J. E. Wigton.....	2	"
Copeland	"	James Copeland	2	Dresden.
Leyton	"	Geo. L. Leyton.....	2	"
Snyder	"	Anderson Snyder	2	"
Amore	"	W. A. Amore.....	6	"
Egbert	"	F. H. F. Egbert.....	4	"
Billman	"	T. F. Billman	3	"
Jamison	"	Robert Jamison	"	"
Stuller	"	Samuel Stuller	"	"
McConnell	"	McConnell & Cox.....	"	Dillon.
Edwards	"	Wm. Iles	6	"
Sellers	"	Isaac Sellers	2	Hopewell.
Morrison No. 2.....	"	A. L. Morrison.....	5	"
Campbell	"	N. W. Campbell.....	3	"
Starkey	"	Wm. Dick	4	Coaldale.
George Porter	"	George Porter	7	"
Frank Dick	"	Frank Dick	2	"
Moore's No. 4.....	"	A. W. Smith.....	2	Ellis.
Lane	"	Jos. Stiner	2	"
McCormick	"	J. W. McCormick.....	"	"
McCormick No. 2.....	"	"	"	"
Granger No. 2.....	"	O. W. Price.....	3	Zanesville.

LIST OF MINES EMPLOYING LESS THAN TEN MEN—Concluded.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	Number of Men.	P. O. Address.
Swanks No. 2.....	"	Noah F. Swank.....	5	"
Locust Grove	"	G. W. Besser.....	3	"
Hoff No. 2.....	"	Wm. Combs .....	...	"
Vandenbark.....	"	Samuel McGee	2	"
Melvin 4 Foot.....	"	Isaac Melvin .....	...	"
Morgans	"	John Morgan .....	...	"
Welch	"	Daniel Fletcher	2	Dresden.
Philo	"	Charles Hock	2	Philo.
Peacock	"	Davis Coal Co.....	8	Dillon.

MORGAN COUNTY.

ROSE

Is located at Deavertown station on the C. S. & H. R. R., and is operated by Carding Bros. Geo. Carding has full supervision. It is a drift opening worked on the double entry system, and ventilated by means of a furnace. It penetrates the No. 6 seam of coal, which is here three feet eight inches in thickness. Twenty-five miners, two inside and one outside day men are employed. It was visited five times during the year and found in fair condition at each visit. Very little work was done during the summer months.

BLACK DIAMOND

Is situated about one-half mile south of Deavertown on the C. S. & H. R. R., and is operated by the Rose Valley Coal Co. John French is superintendent, and L. C. Lucas is mine boss. This is a slope opening worked on the double entry system, and is ventilated by a furnace. The No. 6 seam of coal is here penetrated, and is three feet eight inches in thickness. Thirty miners, three inside and two outside men were employed. It was visited four times during the year and found in fair condition on each visit.

NOBLE COUNTY.

GLENWOOD

Is located on the C. & M. R. R., one half mile north of Glenwood station and is operated by J. J. Phillips, Cleveland, Ohio. Matthew Spiecher is superintendent, and Thomas Dawson mine boss. It is a shaft opening one hundred and ten feet in depth to the No. 7 seam of coal, which is here five feet in thickness. It is worked on the double entry system,

and is ventilated by the means of a fan. Fifty miners, five inside and four outside day men are employed. On February 1st, I found two doors and several stoppings leaking air and ordered them repaired at once. I asked the Committee to notify me if the orders were not carried out. On March 21st, I found there had been three men seriously burned by an explosion of gas on the west first entry. On investigation I found that on days they did not hoist coal the fire boss was cut off, the result being that no examination was made before the men entered the mine. As a general practice the men went in on idle days to make ready coal for the next day. By some one's carelessness the door on the north entry between the first and second west entries had been left open giving the gas a chance to accumulate at the face of those west entries. On entering the mine the men came in contact with this gas on the first west entry, and when within a hundred feet of the last breakthrough the gas ignited, and it seems almost miraculous that the men escaped with their lives. The mine was found in good condition. I gave orders to the mine boss and the miners at the same time that no person should enter the mine until the fire boss had made a thorough examination of the mine and reported its condition. I informed them that the first time this order was disobeyed that the law would be enforced. On my other three visits the mine was found in good condition except the roads which were muddy from hauling water with a water box.

MINES IN NOBLE COUNTY EMPLOYING LESS THAN TEN MEN.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	Number of Men.	P. O. Address.
Boyd	Drift	Theodore Boyd	1	Ashton.
Archer No. 2	"	M. Archer	1	Enoch.
Miller	"	Henry Miller	5	Fulda.
Jumbo	"	J. W. Young	5	Sarahsville.
Sparling	"	James Sparling	2	Whigsville.
Paisley	"	Thos. Paisley	3	Cumberland.
Archer No. 1	"	S. ... Archer	1	McLeary.
Smith	"	John J. Smith	1	Berne.
Leisure	"	Willis Leisure	4	"
McEndree	"	Early & Co. ....	...	Cumberland.
Henderson	"	Willey Bros	4	Mt. Ephriam.
Schott	"	Jacob Schott .....	...	Berne.
Okey	"	Okey & Sloane	2	Stafford.
Day	"	R. A. Day .....	...	Flag.
Yonally No. 2	"	John Daniels	2	"
" No. 1	"	Wm. Yonally .....	...	"
McLaughlin	"	W. M. McLaughlin	1	Sarahsville.
Cleary	"	Uriah Cleary	4	Summerfield.
Donnelly	"	James Donnelly .....	...	Whigsville.
Franklin No. 3	"	John A. Franklin	2	"
Vance No. 2	"	Sheridan Hopkins	2	Flag.
" No. 3	"	David Vance .....	...	"
" No. 1	"	"	2	Stafford.
Taylor No. 2	"	Haney Bros	3	Cumberland.
H. C. Hunter	"	H. C. Hunter	3	"
Baker No. 1	"	D. N. Baker	2	Hoskinsville.
" No. 2	"	"	4	"
Stewart	"	Eli Stewart	1	"
McKee	"	C. J. McKee	2	Caldwell.
Polin No. 2	"	Andrew Polin	6	Perryapolis.
Meeks	"	N. M. Meek	2	Summerfield.
Crawford	"	F. H. Crawford	4	"
Mt. Ephriam No. 2	"	S. J. McConnell	5	Mt. Ephriam.
Love	"	Theo. Love	2	Stafford.
Merry No. 2	"	Eberly & King	7	Enoch.
Young	"	J. E. Young	2	Sarahsville.
Little	"	Wm. McWilliams	6	"
Robertson	"	H. Robertson	2	Stafford.
Miller	"	H. D. Miller	2	Flag.
Markee	"	Fletcher McKee	2	Stafford.
Warfield	"	J. B. Hup .....	...	Berne.
McClintock	"	W. W. McClintock	2	Summerfield.
Orr	"	Cooley Orr	2	Berne.
Anderson	"	Howard Anderson	2	McLeary.
Pickinpaw	"	John Pickinpaw	2	Sharon.
Leslie	"	Philip Leslie	2	Quaker City.
Somers	"	Eli Somers	1	"

REPORT OF THOMAS MCGOUGH.

Inspector for the Fourth District, from November 15, 1898, to November 15, 1899.

Hon. R. M. Haseltine, Chief Inspector of Mines, Columbus, Ohio.

DEAR SIR:—I have the honor to submit the following report for the Fourth District from November 15, 1898, to November 15, 1899. The coal trade has been fairly good during this period, and the mining laws generally observed. As a result in the improvement of trade all orders given have either been complied with or are in the course of construction. In some of the large mines great improvements have been made both in machinery and mode of ventilation which will be noted in the proper place. One large mine has been opened in Guernsey County, viz., the Old Orchard Mine. Electric machines are used and all the modern conveniences for handling the coal.

The relation existing between the miners and operators and the Mining Department has been very cordial during the past year. Thanking you for your advice and assistance, I am,

Very respectfully yours,

THOMAS MCGOUGH,
Inspector of Fourth District.

Bridgeport, Ohio, November 15, 1899.

BELMONT COUNTY.

TAGGARTS

Is located near Barton on the St. Clairsville branch of the C. L. & W. R. R., and is owned and operated by E. N. Boggs & Co. It is a drift opening into the No. 8 seam of coal which is here five and one-half feet in thickness. It is worked on the double entry system, and employs twenty-five miners and eight day hands. Joseph Schwindler is superintendent and mine boss. This mine was visited four times during the year. On my first visit the ventilation was weak, and orders were given to remedy this at once. Scales were visited and found correct. On my other visits the mine was in fair condition, and they have completed a new opening which greatly improves the ventilation. A furnace is used as a means of ventilating the mine.

BOGGS

Is located near Taggarts and is operated by E. N. Boggs who is also manager. It is a drift opening penetrating the No. 8 seam of coal which is here five and one-half feet in thickness. It is worked on the double entry system and is ventilated by means of a furnace. This mine was visited on February 28th, May 19th, July 21st, and October 19th. On my first visit the mine was in good order. Scales were tested and found in

d order in every particular. A new furnace stack was advised at as early a date as possible. On my next visit I ordered the map of the mine completed in order that arrangements could be made for an escapement, and also for the purpose of locating a place for a fan which was added in the place of a furnace. On my next visit the mine was idle and inspection was made. This mine employs sixty miners and eleven day men.

MAPLE HILL

located at Barton, and is operated by the Maple Hill Coal Co. George Merton is the superintendent, and John Woodyatt is the mine boss. There is a drift opening penetrating the No. 8 seam of coal which is five and one-half feet in thickness at this point. It is worked on the double drift plan, and a fan is used as a means of ventilation. One hundred and twenty-five miners and sixteen day men are employed at this mine. This mine was inspected five times during the year. When first visited the mine was found in a very smoky condition, but the superintendent promised to erect a fan which would remedy this defect. On my second visit I was called to investigate the fatal accident which resulted in the death of Stephen Parecheka, a miner. He was engaged in taking down a piece of soapstone when a piece fell on him killing him instantly. The verdict was that he came to his death by accident. On my last visit the mine was in good order in every respect, with a new Brazil fan in operation and a new opening completed.

CRESCENT

A drift opening located at Crescent on the C. L. & W. R. R., and is operated by the Pittsburg & Wheeling Coal Co. J. E. Waters is superintendent and W. E. Applegarth is mine boss. It is worked on the double drift system and has furnace ventilation. Two hundred miners and fifty-one day hands are employed. It penetrates the No. 8 seam of coal which at this point is five and one-half feet in thickness. This mine was inspected twice during the year and found in good order with the exception of the ventilation which was weak, but a new fan is soon to be erected which will remedy this.

WHEELING CREEK NO. 1

A drift opening near Bridgeport and is owned by the P. & W. Coal Co. It employs one hundred and seventy miners, and forty-five day men. A furnace is used as a means of ventilation. Five inspections were made of this mine during the year, as follows: March 22nd and March 24th, April 4th, July 31st, and October 7th and 9th. On my first visit I was called to investigate the fatal accident which resulted in the deaths of Joseph Wardle and Phillip James. They were engaged in working their rooms on the 21st loading a car when a piece of stone fell knock-

ing out a post causing the accident which killed Mr. Wardle instantly and injured Mr. James to such an extent that he died from his injuries two hours later. A slip close to the face caused the stone to fall. This accident caused much sorrow in the community, as both men had worked at the mine and were not only careful and practical miners but were well known and highly respected by all who knew them. Mr. Stoker has succeeded Mr. Biddington deceased as mine boss. On the 7th of October I investigated the fatal accident resulting in the death of Thomas Meagh a miner. He had fired a shot in top coal on October 6th and was in the act of pulling this down when a piece of stone fell on him killing him instantly. On my last visit I tested the scales and found them correct.

WHEELING CREEK NO. 2

Is located near the No. 1 mine and is owned and managed by the same parties, was visited on the same dates and was found suspended.

ROCK HILL

Is located near Flushing, and is operated by the Rock Hill Coal Co. John Selway is the superintendent and mine boss. Four inspections were made during the year. On my first visit I tested the scales and found them weighing correctly. On my second visit they were engaged in drawing the pillars, and ordered plenty of timber kept on hands at all times. The third visit was to investigate the death of Peter Tena, a miner. He and another man were engaged in drawing pillars and had undermined the coal for four feet deep and eleven feet long when it fell and caught him crushing him so that he died on the evening of the same day. This mine has since been abandoned.

FLUSHING

Is located at Flushing and is owned by the Flushing Coal Co. W. G. Williams is superintendent and mine boss. This mine was visited three times during the year and was found in fair condition. It is a drift opening worked on the double entry system, and has fan ventilation. The No. 8 seam of coal is here penetrated which is four feet in thickness. Forty miners, and thirteen day hands are employed.

NAIL MILL

Is located near Bellaire and is operated by the Bellaire Steel Works. Chalkley Dawson is superintendent and Jacob Long is mine boss. This is a drift opening to the No. 8 seam of coal which at this point is five and one-half feet in thickness. It is worked on the double entry system, and is ventilated by a fan. Forty-nine miners and nineteen day men are employed. This mine was inspected on February 23rd and July 21st. This mine is equipped with electric mining machinery of the Jeffry and Morgan Gardner type, and an electric motor is used to haul the coal. These machines are giving very good satisfaction.

BARNARD

located near Bellaire and is operated by Kinsey Bros. This mine was visited twice during the year, but has worked very little and is now abandoned.

FRANKLIN

located near Franklin Station on the B. & O. R. R., and is operated by Owen Meehan. This mine is at present suspended.

GLEN

located near Glencoe on the B. & O. R. R., and is owned by the Glen Coal Co. W. G. Simpson is the superintendent and James Fryman is the mine boss. It is a slope opening twenty feet long to the No. 8 seam of coal, and is worked on the double entry system. A fan is used as a mode of ventilation. Forty-five miners and twelve day men are employed. This mine was inspected twice during the year and found to be in a fair condition. Compressed air mining machines have been installed in this mine during the year.

O. AND W. VA.

located on the St. Clairsville branch of the B. & O. R. R. and is owned and operated by the O. & W. Va. Coal Co. C. Troll is superintendent and James Sklenar is the mine boss. This is a drift opening to the No. 8 seam of coal which is five and one-half feet in thickness at this point. It is worked on the double entry system and is ventilated by a furnace. Fifty-two miners and ten day hands find employment at this mine. This mine was inspected twice during the year and found in fair order. A thirty-five foot addition has been built to the furnace stack and considerable timbering has been done.

BLACK DIAMOND

located near St. Clairsville and is managed by the Troll Bros. of St. Clairsville, Ohio. This is a drift opening to the No. 8 seam of coal which is here five and one-half feet in thickness. It is worked on the double entry system, and is ventilated by a furnace. Eighty-five miners and thirteen day hands are employed. This mine was inspected twice during the year and found in fair condition. M. O'Grady is the mine boss.

ECHO

located near the Black Diamond Mine on the St. Clairsville branch of the B. & O. R. R., and is operated by S. H. McGregor. This is a drift opening to the No. 8 seam of coal which is here five and one-half feet in thickness. It is worked on the double entry system and is ventilated by means of a furnace. This mine was inspected three times during the

year and was found in bad condition on my last visit. I advised the sinking of an air shaft, also tested the scales which I found correct. Forty miners and eight day men are employed at this mine.

PITTSBURGH

Is located at Bellaire and is owned and operated by the Pittsburgh Block Coal Co. James Wood is superintendent, and Wm. Jamison is mine boss. It is a slope opening one hundred and fifty feet long to the No. 8 seam of coal which is five and one-half feet in thickness at this point. It is worked on the double entry system, and employs forty miners and twelve day men. Five visits were made during the year. On my first visit to this mine the ventilation was poor owing to the obstructions in the air courses. I stopped the main entry until the doors were put up and gave orders for the men to do the greater part of the firing at closing time. I also gave an order for a new air shaft at the face of the main entry. The main entry was ready for the new electric motor and I ordered safety holes made every sixty feet. On my second visit they were building a new tippie and placing feed wires for the electric machines. I gave orders to have the wires boxed in to prevent any one from coming in contact with them. A new fifteen foot fan was on the ground to be erected at an early date. I repeated my orders for safety holes. On my next visit one machine was working and the wires had been boxed in as ordered, and they were engaged in putting in a new hoisting engine. I gave orders to have the fan erected as soon as possible. I examined the map of their mine in order to locate an air shaft.

BELMONT NO. 2

Is located in Bellaire and is owned by the Belmont Coal Co. D. B. Brooks is the manager. This is a drift opening to the No. 8 seam of coal which at this point is five and a half feet in thickness. It is worked on the double entry system and is ventilated by a furnace. Forty miners and twelve day men are employed. Three visits were made to this mine in the course of the year and the mine found in good condition.

ETNA STANDARD

Is located at Etnaville and is owned and operated by the Etna Standard Iron & Steel Co. Roger Ashton is the mine boss. This is a drift opening worked on the double entry system, and is ventilated by means of a furnace. It penetrates the No. 8 seam of coal which at this point is five feet in thickness. Thirty-seven miners and seven day hands are employed. Three visits were made to this mine. On my first two visits the mine was found idle but in good order. On my last visits the mine had resumed operations as the works of the Company are now using the coal. Two sets of scales were tested. One was found correct, but the other set did not operate freely. I gave orders to have the bearings oiled and cleaned and then they would be all right.

ECHO

located near Black Diamond on the St. Clairsville branch of the B. & O. R. R., and is operated by S. H. McGregor. It is operated on the double entry system, and employs from five to twelve miners. A furnace is used as a means of ventilation. It was inspected on August 3rd and found in good condition. A twelve foot addition has been built to the main stack. Some timber was ordered on the main entry.

CAPTINA

located on the B. Z. & C. R. R., and is operated by the Captina Coal Co. V. Gates is superintendent and mine boss. This is a shaft opening twenty-five feet in depth to the No. 8 seam of coal which is six feet in thickness at this point. It is worked on the double entry system and fanilation is used as a ventilating power. It was inspected on December 1, April 5th and August 2nd. On my first visit I was called to the mine to investigate the accident resulting in the death of Charles Boston, miner. He was working at a standing shot when the stone and coal fell, a portion of it striking him near the neck killing him instantly. On my last two visits the mine was found in fair condition.

WALNUT HILL

located at Yorkville and is operated by the O. & P. Coal Co. John Smith is superintendent and John McLaughlin mine boss. This is a shaft opening to the No. 8 seam of coal which is here five and one-half feet in thickness. It is worked on the double entry system and is ventilated by means of a furnace. Eighty-six miners and twenty-two day men are employed. Four visits were made to this mine during the year. On my first visit the mine was in poor condition, and although two entries had been driven outside the ventilation was deficient. Orders were given to remedy these defects. On my next visit conditions were even worse than on my previous visit. The roads were muddy, the arch of the furnace had sagged in, and there was also a scarcity of posts. The superintendent admitted that he was unable to secure material from the company with which to make the proper repairs. I notified them that the mine would be closed if it was not placed in a condition as required by law. On July 1st the mine was found in a fair condition. A new tippie, mining machinery and fan will be in operation in a short time. My last visit was made to investigate the complaints of the miners in regard to the dynamite smoke that was caused by the using of dynamite by the men who were working the new opening, and which was contrary to my orders as it is the best for the air. There will be no more shooting while the mine is working. A trapper was ordered for the main door.

GAYLORD

Is located four miles north of Bridgeport on the C. & P. R. R. It is a drift opening worked on the double entry system and is ventilated by means of a furnace. Fifty-five miners and fifteen day men are employed. It penetrates the No. 8 seam of coal which is here five and one-half feet in thickness. This mine was visited five times during the year, and while the mine was in poor condition at the beginning of the year it is now in good condition. They have completely timbered the main entry way and sunk a new air shaft.

LAUGHLIN

Is located near Martins Ferry and is owned by the Laughlin Nail Co. This is a drift opening to the No. 8 seam of coal which at this point is five and one-half feet in thickness. It is worked on the double entry system and is ventilated by a fan. This mine employs twenty-six miners and eight day men. Wm. Glessner is superintendent and Lee Woods is the mine boss. Five visits were made to this mine and with the exception of some minor improvements which were needed the mine was in fair order. A new opening has been made through the hill which supplies the mine with a good current of air, and they have also extended the rope haulage three hundred feet.

COCHRANS OR QUAKER CITY

Is located at Baileys Mills on the B. & O. R. R., and is operated by Alex Cochran, and Dode Smith is employed as mine boss. This is a drift opening to the No. 8 seam of coal which is here four feet in thickness at this point. It is worked on the double entry system and is ventilated by means of a furnace. Fourteen miners and eight day men are employed. Two inspections were made of this mine during the year and found to be in fair condition, but the roads needed a great deal of attention. I ordered a ditch to be dug two feet deep and forty feet long. I notified the operator of the condition of his mine at his home in Quaker City.

SHICKS

Is owned and operated by Schick and Turnbull of Bellaire. James Turnbull is the superintendent, and W. M. Turnbull is the mine boss. This is a drift opening worked on the double entry system and is ventilated by a fan. It penetrates the No. 8 seam of coal which is here five and one-half feet in thickness. This mine was visited three times during the year. On my first visit the mine was suffering from the effects of a squeeze on the entry which led to the new air shaft, caving it in and rendering that improvement useless. They were compelled to erect the fan in another place and the air course used to ventilate the mine until connection could be made with another entry. When last inspected the mine was in fair condition with a twelve foot Brazil Fan in operation giving good results. Twelve miners and eleven day hands are employed.

WEGEE

ated five miles south of Bellaire and is owned by John Hall. This slope opening seventy-five feet in depth to the No. 8 seam of coal is here five and one-half feet in thickness. It is worked on the entry system and is ventilated by a furnace. Two inspections made during the year. On my first visit the mine was in such a condition that I notified the authorities that if the mine was not in a proper condition I would close it down. On my last visit the mine was suspended. Ten miners and four day hands are employed.

MINES IN BELMONT COUNTY EMPLOYING LESS THAN TEN MEN.

name of Mine.	Kind of Opening.	Name of Owner or Operator.	Number of Men.	P. O. Address.
.....	Drift	Hellar Bros	2	W. Wheeling.
.....	"	David Brooks	4	Bridgeport.
line	"	Koehline & Son.....	8	"
naughy	"	Jas. McConaughy	4	"
rs	"	Meister & Son.....	2	"
rs No. 2.....	"	E. McConaughy	2	"
ahs	"	J. Wilson	4	"
ts	"	T. Costine	2	"
.....	"	John E. Klee.....	2	Bellaire.
.....	"	D. Boston	2	"
n & Garrell.....	"	Morgan & Gorrell.....	4	"
.....	"	Israel Pelkv	3	"
& Archer.....	"	Davis & Archer.....	4	"
ings	"	John Musgrove	3	"
on	"	John Robinson	1	"
nt No. 1.....	"	Belmont Coal Co.....	3	"
ls.....	"	Louis Pelkey	3	"
.....	"	Charles Rosser	2	"
.....	"	S. Glasgow	2	"
as	"	Evan Morris	3	Martins Ferry.
gs	"	Helling Bros	2	"
.....	"	G. W. Kiger.....	3	"
t	"	Lephart & Burns.....	3	" " Aban'd.
.....	"	Charles Heldt	2	"
.....	"	J. Owens	2	Powhatan.
g	Slope	S. Fielding	2	"
patt	"	John West	2	"
g	Shaft	John Schnegg	2	"
.....	Drift	Davey Bros	3	Baileys Mills.
.....	"	Frank Cass	3	Barton.
s	"	George Ayers	2	"
.....	"	W. P. Williams.....	3	"
vick	"	C. Sedgwick	2	Martins Ferry.
.....	"	D. K. Allen	2	" " Aban'd.

COSHOCTON COUNTY.

HUDSON NO 1 AND 2

Are situated three miles from Coshocton on the C. C. & S. R. R., and are owned by the Hudson Coal Co. C. Hudson is superintendent, and mine boss. They are drift openings, and employ fifty miners and thirteen day men. The coal at this point is three and one-half feet in thickness. Three visits were made to these mines during the year and were found in fair condition. The ventilation was weak but they are now sinking a new air shaft which will remedy this defect, and a new furnace is to be built in the place of a fire basket. In the future the mines will be worked on the double entry system.

CONLEY NO. 2

Is situated on the C. C. & S. R. R., and is owned by John Conley. J. K. Bowers is the superintendent and mine boss. It is a drift opening, worked on the single entry system and is ventilated by means of a furnace. Twenty miners and seven day men are employed at this mine. Two visits were made during the year and the mine found in fair order. Scales were tested and found correct.

FRANKLIN EAST SIDE

Is located near Franklin station on the P. C. C. & St. L. R. R., and is operated by the Columbus Mining Co. F. N. Barnes is the superintendent and Sam Kitchen is the mine boss. It is a drift opening worked on the single entry system and is provided with furnace ventilation. Thirty-six miners and nine day hands are employed. The coal at this point is three and one-half feet in thickness. During the year three visits were made to this mine and was found in fair condition. The new scales were tested and found correct in every particular. On my second visit they were tested and found correct. The air had been changed according to my directions and was giving good results. When last inspected the mine was in fair condition.

FRANKLIN WEST SIDE

Is operated and managed by the same parties as the Franklin East Side mine, and the coal is dumped over the same tippie. It was inspected on the same dates as the East Side mine and was found in fair order. A boy who was under age was sent out of the mine on my first visit. Two day men are employed and twenty miners.

MORGAN RUN

Is situated five miles from Coshocton on a branch of the C. C. & S. R. R., and is operated by the Morgan Run Coal Co. Robert McCormick is

mine boss, and L. B. Piper is the superintendent. The coal at this point is three and one-half feet in thickness. One hundred and twenty-five miners and thirty-seven day men are employed, and is worked on the double entry system. This mine was visited twice during the year. On my first visit it was necessary to reduce the number of men in a face entry until the entry was driven outside. On my last visit the mine was in a fair condition. A new opening had been driven to furnish sufficient ventilation, and also a water course provided on my last visit to the mine which was a benefit to the mine. The scales were tested on my first visit and found correct.

WADE

is located near Morgan Run mine and is operated by the Wade Coal Co. L. B. Piper is superintendent, and James Perkins is mine boss. This is a drift opening worked on the double entry system, and a furnace is used as a mode of ventilation. The coal at this point is three and one-half feet in thickness. Twenty-four miners and seven day men are employed. During the year three inspections were made to this mine. On my first visit the mine was found in good order, but, on my second visit the mine was drowned out nearly one-half, and only a few men were at work in the crop. They intend moving the tippie up the hollow and run the railroad tracks to it as it is an impossibility to handle the water through this opening. When last inspected the mine was in fair condition and they were engaged in putting in a new opening three-quarters of a mile from the old one, and a new tippie will be built at this point. A new air shaft seventy-five feet deep has been completed for this new opening, and they expect to run the coal next month.

CONESVILLE NO. 1

is located near Conesville on the P. C. C. & St. L. R. R., and is operated by David Davis. James Murphy is mine boss. Forty miners and nine day men are employed at this mine. Four visits were made during the year. On my first visit they had driven the main entry through the hill and opened a new mine on the other side. An air shaft forty feet deep had been sunk and a temporary furnace erected. On my second visit the mine was in fair condition. When visited on August 8th, they had remodeled the mouth pit which has improved the ventilation. On my last visit I was called to investigate the accident which resulted in the death of John Courtright, a miner. He with his son were at work on October 6th, when a piece of slate fell on him, from near the face killing him instantly. An inquest was held on the 9th of October and the verdict rendered was that he came to his death by his own carelessness, as he had been warned of his danger and should have taken the slate down. Scales were tested and found correct.

CONESVILLE NO. 3

Was visited the same number of times during the year as the Conesville No. 1, and was found in fair order. Some minor improvements were ordered. Thirty-five miners and seven day men are employed.

CONESVILLE NO. 4

Is located near the No. 3 mine and is owned and operated by the same parties. This is a drift opening worked on the single entry system and the coal at this point is three and a half feet in thickness. Fifty-eight miners and twenty-one day men are employed at this mine. Three visits were made during the year. On my first visit the mine was poorly ventilated caused by leaking brattices and doors, and they were ordered to remedy these defects.

The second visit was made in company with Chief Inspector R. M. Haseltine at which time we found the ventilation very poor, owing to the necessity of a good furnace. Orders were given to repair the old furnace until a good one was built or a new air shaft could be sunk and a fan erected. On my next visit none of our previous orders had been complied with, and the mine would have been closed but it was idle. I notified the mine boss not to operate the mine until ventilation was sufficient. When last visited on August 8th, a new air shaft had been sunk and a stack thirty-five feet high, and a new furnace had been built which greatly improved the ventilation. A new slope is being contemplated which will be sunk near the face of the workings which will give them a new inlet for the air. Needed improvements have been made to the main entry and track. The new inlet when completed should supply the mine with air for years to come.

CONESVILLE NO. 5

Was inspected four times during the year and found in good order.

CASSINGHAMS

Is situated three miles from Coshocton on the C. C. & S. R. R., and is owned by the Coshocton Coal Co. Charles Cassingham is superintendent and James McCormick is mine boss. This is a drift opening worked on the double entry system and is ventilated by a furnace. Sixty-five miners and twenty day men are employed. This mine was inspected three times during the year. The mine was in good condition on my first visit. I also investigated the fatal accident that resulted in the death of Wm. Matthews, a miner. He was working on the breakthroughs on November 26th, when a piece of slate fell on his back injuring him to such an extent that he died on December 21st. Several boys who were under age were sent from the mine. On my second

visit the mine was in fair condition and the company were contemplating the sinking of a shaft at the depth of the workings, and also to pump the water from it. This will be necessary in order to prevent the water from filling the air course. When last inspected a gasoline pump was at work giving good results.

DRAKE OR HAY NO. 2

Is located near Coshocton and is managed by the same company as the Cassingham mine. I inspected this mine three times in the course of the year and found it in fair condition, excepting the ventilation which was poor. I ordered a new air shaft sunk and a furnace erected at No. 8 entry to remedy this. Thomas Williams is mine boss. It penetrates the No. 6 seam of coal which at this point is three and one-half feet in thickness. It is worked on the single entry system and is ventilated by a furnace. Thirty-four miners and seven day hands are employed.

MINES IN COSHOCTON COUNTY EMPLOYING LESS THAN TEN MEN.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	Number of Men.	P. O. Address.
Orange No. 1.....	Drift	Orangeville Coal Co....	6	Coshocton.
Orange No. 2.....	"	Charles West	4	"
Flint Hill	"	Thomas Clough	3	"
Halls No. 1.....	"	Charles West	2	"
West	"	Ed. West	2	"
Hays No. 1.....	"	J. H. Robson	8	"
Davis	"	J. L. Davis	4	"
Bells	"	Anderson Bell	2	Tyrone.
Kirkers.....	"	Sam Kirker	2	"
Halls No. 2.....	"	Luke Hall	6	Conesville.

GUERNSEY COUNTY.

HARTFORD

Is located at Hartford and is operated by J. W. Ellsworth & Co. W. H. Davis is superintendent and David Williams is mine boss. It is a shaft eighty-five feet deep, worked on the double entry system and a fan is used as a means of ventilation. It penetrates the No. 7 seam of coal which at this point is six feet in thickness. One hundred and fifty miners and forty-five day men are employed. Five visits were made during the year. The mine was in fair condition on my first visit. I ordered the stairway

repaired in the manway at once. My second visit was made in company with Chief Mine Inspector R. M. Haseltine on May the 3rd to inspect the new trap doors they were putting in the mine. They had only been in use a few days so opinion was reserved until they had been given a more thorough trial. On May 12th the mine was in fair condition but a larger fan will be needed as they use a large amount of powder in this mine. The scales were tested on May 24th and found correct. On my last visit the mine was found in a smoky condition and I suggested the sinking of a new air shaft.

TRAIL RUN

Is operated by the same company as the Hartford Mine. It is a shaft opening seventy-five feet deep, and is worked on the double entry system. The No. 7 seam of coal is here penetrated which is five feet in thickness. Eighty-five miners and thirty-two day men are engaged at work in this mine. Five visits were made to this mine during the year. On my first visit the roads were in a bad condition with mud and water, and the electric pump had broken down and they were waiting for material to repair it. The entry was not completed which was to be used as a manway. A double shift was at work, but the water will have to be pumped out before it can be used as a travelling way. All of the south side has been abandoned. The scales were tested and found them correct. On my next visit the travelling way was completed and the electric pump was giving perfect satisfaction. On June 27th I investigated the cause of the fatal accident which befel Stanton Shelby who was injured on June 5th, and died on June 17th. He was employed in firing the boilers, but on the night of the accident he was to oil the pump near the bottom of the shaft and he went down the cage in violation of the mining laws when the rope slipped off letting him fall a distance of twenty-five feet causing his death. On my last visit the mine was found idle and no inspection was made.

WALHOUNDING MINE

Is located on the C. & M. R. R. near Dyson, and is superintended by W. H. Davis. This is a shaft opening ninety-five feet in depth to the No. 7 seam of coal which is here five feet in thickness. It is worked on the double entry system and is ventilated by a fan. Three hundred miners and ninety-five day hands are employed. Five inspections were made during the year. On my first visit the mine was in fair condition but they were somewhat careless in regard to breakthroughs. These I ordered corrected at once. On my second visit the mine was found in fair condition, and G. W. Phillips had succeeded G. P. Bird as mine boss. The third visit I was called to investigate a fatal accident resulting in the death of John Hudick, a miner. He with his partner were working on June 7th loading a car when a piece of stone fell on him killing him instantly. A slip was the cause of the accident. On my next visit there

were complaints of the trappers and drivers using black oil. They were warned about this practice. On June 30th Bert Harding, a driver, was caught between a trap door and a car and died on July 28 on which date the inquest was held and a verdict rendered according to the facts of the case.

CENTRAL

Is located at Byesville and is managed by the same company as the Walhounding Mine. W. H. Davis is the superintendent, and James Hanna is the mine boss. During the year five inspections were made. On my first visit they were making some changes in the rope haulage. On my second visit I was accompanied by Chief Inspector R. M. Haseltine at the request of the company as they intended to abandon the part of the mine about the face of the entry. Arrangements were made about putting in dams which will insure safety in the future. On May 15th I investigated the fatal accident which resulted in the death of Hollis James. He with another miner was working drawing pillars when a piece of stone fell on him killing him instantly. Two props would have saved his life, but he neglected to set them. The mine was in good order when last inspected. This is a shaft opening worked on the double entry system, and is ventilated by the means of a fan. It penetrates the No. 7 seam of coal at a depth of seventy-five feet. Ninety miners and twenty-seven day hands are employed. The coal at this point is five feet in thickness.

KINGS

Is located near Campbell Station on the B. & O. R. R., and James Collins is superintendent, and P. McAuley is the mine boss. It is a shaft opening ninety-five feet in depth to the No. 7 seam of coal which is here five feet in thickness. It is worked on the double entry system and is ventilated by means of a fan. Eighty-five miners and twenty-six day hands are employed. Five inspections were made during the year. On January 3rd I was called to investigate the accident that resulted in the death of Henry Hill. He had been seriously injured on December 30th. It was his duty to attend to the pumps, as he was standing at the side of the entry to allow a loaded trip to pass, after the motor had been cut loose from the trip, he allowed it to pass but stepped in front of the cars which crushed him so that he died on January 4th. The ventilation at this time was in poor condition and I ordered the air courses cleaned out at once. On my second visit the mine was in fair condition. On my third visit I stopped one entry, and ordered the water taken out of the travelling way at once, and requested them to look carefully after the doors and brattices. On May 18th I investigated the fatal accident that resulted in the death of Frank Collins, a boy. On May 16th he was engaged in running the electric motor, and was coming out with a loaded trip. When near entry No. thirteen he fell off. What caused his fall is not known. The theory

was that he struck his head on a timber, which threw him from the motor, several cars running over him injuring him to such an extent that he died on the next day. The mine on my next visit was in fair order. On my next visit the ventilation was poor, and I gave them orders to sink an air shaft at the face of entry No. 40, as this was in my estimation the better way to ventilate the mine. Also ordered the leaks stopped and gave them orders to employ no more men.

NICHOLSON

Is located two miles south of Cambridge and is operated by the Ohio Coal Co. A. J. Warner is superintendent and D. E. Evans is the mine boss. Four visits were made during the year. On my first two visits I found the mine idle and on my last visit it was found in fair condition. Twenty miners and seven day men are employed. This is a drift opening penetrating the No. 7 seam of coal which at this point is five feet in thickness. A furnace is used as a means of ventilation.

BRIAR HILL NO. 2

Is located south of Cambridge on the C. & M. R. R., and is operated by the Hamilton Mining Co. This mine is now abandoned.

BRIAR HILL NO. 3

Is operated by the same parties as the No. 2 mine and is also abandoned.

GUERNSEY

Is situated two miles east of Cambridge, on the B. & O. R. R., and is operated by the Cambridge Coal Co. Five visits were made to this mine during the year. The ventilation on my first visit was so poor that the mine was closed down until brattices were erected and doors hung. The operators of this mine are very careless in the management of this mine as the fire in the furnace was nearly out, and ashes found piled up to the grate bars. Men were set at work repairing these defects. On my next visit the improvements were made as ordered, but the mine was suspended. On my other visits the mine was found in fair order. J. E. Kistler is superintendent, and Charles Starr is mine boss. Eight miners and two day men are employed.

C. C. C.

This is a drift opening and is owned and operated by the same parties as the Guernsey mine. This mine was inspected five times during the year. On my first visit the mine was suspended on account of the pumps being broken. On my second visit I tested the scales, and found them correct, and the mine in good order. Permission was granted to turn rooms twelve feet distant from the entry, but no farther, on account of

the water in the Guernsey mine. Inspected this mine in company with Chief Mine Inspector R. M. Haseltine on May 4th, to examine the place located near the Guernsey mine. Orders were given to have a map made of the C. C. C. mine, and an endeavor made to secure the Guernsey mine map. Holes were ordered drilled twelve feet ahead until this was done. On my next visit I examined a map of the Guernsey and C. C. C. mine at the request of the Mine Managers and Mine Committee, in regard to the proximity of the water. The map shows that the face entries of the C. C. C. mine will not come in contact with the Guernsey mine for a distance of one hundred feet at the nearest point. I ordered test holes drilled within a distance of twenty feet of said butt entries when they reached that point, although the map shows a block of coal one hundred and fifty feet between the face entry. The mine was on a strike on my last visit and no inspection was made. Eighteen miners and six day hands are employed. It penetrates the No. 7 seam of coal, which is here five feet in thickness. A fan is used as a mode of ventilation.

CISCO

Is situated at Dyson on the C. & M. R. R. This is a shaft opening eighty-five feet in depth and is superintended by Thomas E. Richards. Thirty-five miners and nine day men are employed. A fan is used as a means of ventilation. This mine was inspected twice during the year, and found in fair condition. The first visit was in company with Chief Inspector Haseltine, and orders were given to case in the old oil well which was broken into on the south entry in order to prevent any gas from escaping into the mine and thus endanger the lives of the workmen. On my last visit scales were tested and found correct.

FORSYTHE

Is situated four miles east of Cambridge, and is operated by the Forsythe Coal Co. C. Forsythe is superintendent, and Charles Rabe is mine boss. This is a slope opening to the No. 7 seam of coal, which is here five feet in thickness. A fan is used as a method of ventilation. Sixty miners and eighteen day men are employed. This mine was visited five times during the year. On my first visit the electric mining machines were proving satisfactory, but the air was weak owing to an accumulation of ice in and around the air shaft. I requested that men be put to work at once to remedy this, and notified the management that if the mine was found in the same condition again that it would be closed down without notice. On my next visit the miners were out on a strike. Hugh Collins has superseded Charles Rabe as mine boss. The mine was in fair condition on my next visit. On August 28th, 1899, the coupling pin came out of a loaded mine car at the top of the incline causing the car to run down the slope injuring the mine boss and the man who at-

tends to the cars at the foot of the slope. It is my opinion that the pin was not placed through both holes which was the cause of the accident. On October 31st, there were complaints about the ventilation. Several check doors were ordered. On my last visit I was called to investigate the death of Wm. Ramage, a miner, who died from a stroke of paralysis while tamping a hole. He expired before his fellow miners could get him out of the mine.

PIONEER

Is located near Byesville on the C. & M. V. R. R., and is owned and operated by the Pioneer Coal Co. Three inspections were made, and at each visit the mine was found in fair condition. The work in this mine is nearly all pillar work, and I gave orders to have plenty of timber kept on hand at all times. This is a slope opening one hundred and fifty feet in depth and penetrates the No. 7 seam of coal. W. H. Davis is superintendent and George Shaw is mine boss. A fan is used as a means of ventilation. Forty miners and sixteen day men are employed.

KLONDIKE

Is located six miles east of Cambridge on the B. & O. R. R., and is operated by Loomis Moss & Co. Wm. Rigby is superintendent, and Harry Moss is mine boss. This is a new slope mine one hundred and fifty feet in depth to the No. 7 seam of coal. The mine is ventilated by means of a fan. Thirty-five miners and nine day men are engaged at this mine. Inspections were made four times during the year. On my first visit the air course was nearly completed, but the weather was so severe they could not work at the travelling way. I notified them to make cross-cuts at the proper distance of sixty feet. My second visit was made in company with Chief Mine Inspector R. M. Haseltine at which time the mine was found in good order. Several rooms were stopped until proper cross-cuts were made. Also tested the scales and found them correct. The mine was in fair order. On my next visit I tested the scales again and found them correct, but left the test weights in order that they might test them when necessary. The stairway was completed. On my last visit all orders had been complied with. Scales were tested and found correct.

OLD ORCHARD

Is a new shaft located near Forsythe mine and is owned and operated by the Old Orchard Coal Co. W. P. Devore is superintendent, and Ed Donley is mine boss. This mine was inspected twice during the year. On my first visit they were building a tippie and power house and had opened a slope for a manway, and a twelve foot Braxil fan was on the grounds. This mine will be equipped with all the modern conveniences. On my last visit they were hoisting a little coal. This is a model mine in every respect. The company is about to change hands and will be operated by Morris and Guild.

IMPERIAL

Is located near Derwent P. O., on the C. & M. R. R., and is superintended by Perry Devore. Ed Donley is the mine boss. This is a shaft opening one hundred feet in depth and is worked on the double entry system. A fan is used as a means of ventilation. Thirty-six miners and thirteen day men are employed. My first visit was made in company with Chief Inspector R. M. Haseltine, and the mine was in first class order in every respect. I gave orders on my second visit to sink a shaft for the manway as rapidly as possible. When last inspected the shaft was down forty-five feet. Ordered it finished as soon as possible, and a good stairway built at once. The mine was in good order.

MINES IN GUERNSEY COUNTY EMPLOYING LESS THAN TEN MEN.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	Number of Men.	P. O. Address.
Briar Hill	Drift	D. Nicholson	5	Cambridge.
Wilson	"	J. E. Wilson	2	"
Central Shaft	Shaft	Old Orchard Co.	8	"
Deep Cut	Drift	Burris & Wilson	2	"
Sayers	"	Samuel Sayers	2	Quaker City.
Halls	"	J. G. Hall	3	"
Moores	"	J. S. Moore	2	"
Sugar Grove	Slope	John Holbrook	2	Byesville.
Morris No. 2.	Drift	Right & Cheney	6	Post Boy.

MINES IN MONROE COUNTY EMPLOYING LESS THAN TEN MEN.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	Number of Men.	P. O. Address.
Carleton No. 1.	Drift	S. R. Carleton	2	Jerusalem.
Bruce	Shaft	J. W. Bruce	10	Aitch.
Woodland No. 2.	Drift	Wm. Woodland	2	Jerusalem.
Dennis	Shaft	Dennis Bros	2	Aitch.
Morris	Drift	Wm. Morris	2	Woodsfield.
Coats	"	George Coats	3	"
Steel	"	Wm. Steel	2	Jerusalem.
Baker	"	George Baker	2	Woodfield.

MINES IN HOLMES COUNTY EMPLOYING LESS THAN TEN MEN.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	Number of Men.	P. O. Address.
Harpster	Drift	B. Urick	2	Millersburg.
Skellys	"	E. B. Skelly	2	"
Myers	"	Bowen Bros	2	"
Chevellard	"	J. Chevellard	2	"
Fishburn	"	J. Seigenphaller	2	"
Horn	"	J. Horn	3	"
Winegard	"	J. Krienerick	3	"
Masts	"	S. H. Mast	3	"
Lookout	"	W. H. Grindleberger	3	"
Neiser	"	A. Akerat	1	"
Holmes Co.	"	G. C. Quillin	2	"
McNara	"	W. H. Miller	2	Saltillo.
Carleton	"	J. B. Carleton	3	Millersburg.
Farvers	"	Farvers Bros	2	"

REPORT OF JAMES P. DAVIS.

Inspector of the Fifth District from November 15th, 1898 to November 15th, 1899.

Hon. R. M. Haseltine, Chief Inspector of Mines, Columbus, Ohio.

SIR:—I respectfully submit my second annual report of the mines of the Fifth District of the State, which embraces the counties of Carroll, Harrison, Jefferson and the southern portion of Columbiana county. In discharging the duties of District Inspector, I have visited the mines under my charge as often as time would permit, while a large portion of my time has been taken up in the sealing of oil wells which rendered it impossible for me to visit the mines of this district as often as I should have done. During the period which this report covers I have sealed about seventy-five wells. The last four months of the year my time has been almost entirely taken up with this work in the Scio and Cadiz oil fields.

With few exceptions the mines in this district have been in operation during the entire year, a large percentage of which were always found in a good condition. I occasionally found one in a state of disorder due to the various causes that follow in the routine of the mining industry. It has been my highest aim in the discharge of my duties to preserve the lives of the workmen entrusted to my care, notwithstanding all the care and precaution that has been taken, seven fatal accidents have occurred in the mines of this district, six in Jefferson county, and one in Columbiana. You will find a complete account of each accident in my report of these mines in their order.

I wish to thank you for your valuable assistance, and I am also grateful to the miners and operators for the courtesies extended me during the year.

Respectfully yours,

JAMES P. DAVIS,
Inspector of Fifth District.

Dell Roy, Ohio, November 15th, 1899.

CARROLL COUNTY.

ELDER

Is located two miles east of Dell Roy, on the Cleveland Division of the W. & L. E. R. R., and is owned by J. D. Owens of Canton, Ohio. This is a drift opening to the No. 7 seam of coal. The solid coal of this mine has been exhausted, the principal work being the drawing of the pillars. J. D. Owens is superintendent and mine boss. From ten to fifteen miners and five day hands are employed at this time.

SCOTTS

Is situated three miles east of Dell Roy, on the Cleveland Division of the W. & L. E. R. R., and is owned by the Mardy Coal and Mining Co. of East Liverpool, Ohio. W. E. Bolton is superintendent, and C. W. Lewis is the mine boss. It is a drift opening into the No. 7 seam of coal. The old works of this mine have been abandoned and a new opening is being made with John T. Reese as manager. Only three men were employed here at the close of the year. The life of this mine depends entirely upon the development of new territory.

SOMERS NO. 5

Is located two miles east of Sherrods-ville, on a branch of the W. & L. E. R. R. and is owned by J. H. Somers & Co., Cleveland, Ohio. Wm. Maloney is superintendent and mine boss. The opening is a drift into the No. 7 seam of coal. The mine is worked on the double entry system and is ventilated by a fan. The coal is mined by electric power, the Jeffrey mining machines being in use. A motor is used to haul the coal to the chutes. About one hundred miners and twenty day men are employed until about September 29th, when the mine was abandoned.

DAVIS NO. 3

Is located on a branch of the W. & L. E. R. R., one mile east of Sherrods-ville, and was formerly owned by the Fuller Coal Co. of Toledo, Ohio, and then by R. H. Wainwright of Massillon, Ohio, but is now owned by H. S. Odibert of Cleveland, Ohio. H. S. Odibert is the superintendent and R. D. Jones is the mine boss. It is a drift opening into the No. 7 seam of coal, worked on the double entry system, and has furnace ventilation. The coal is hauled to the chutes by an endless rope. The solid coal in this is almost exhausted. About fifty-five miners and twelve day men are employed.

STARKEY

Is located one mile west of Minerva on the Tuscarawas branch of the Cleveland & Pittsburg R. R. This mine was formerly owned by the Minerva Coal & Coke Co., of Minerva, Ohio, but is now owned by the Betz Coal Co. of Akron, Ohio. A. E. Betz is superintendent and mine boss. This is a slope opening into the No. 6 seam of coal, which is two feet eight inches in thickness at this point. It is worked on the single entry system and a furnace is used as a mode of ventilation. This mine has been idle part of the year. From seven to ten miners and three day men are employed.

HUSTON

Is located one and one-half miles west of Carrollton and is owned by Huston & Fawcett and is leased to F. P. Moody who is manager. It is

a drift opening into the No. 7 seam of coal, and is of the domestic class. A new furnace was erected which gives entire satisfaction. From eight to ten miners find employment at this mine.

LINDEN NO. 1

Is located on a branch of the Valley R. R., three miles east of Mineral Point, and is owned by the Davis Ry. Coal Co. of Canton, Ohio. W. L. Davis is superintendent, and J. J. Evans is mine foreman. A. T. Cameron is in charge of this opening which is a drift to the No. 5 seam of coal. It varies in thickness from two and one-half to four feet. The double entry system is used with furnace ventilation. A new air shaft has been sunk which has greatly improved the ventilation. About forty miners and ten day men are employed.

LINDEN NO. 2, 3 & 5.

These mines were owned by the same company and were abandoned within the year.

LINDEN NO. 6

Is a new drift opening into the No. 6 seam of coal, and is located about one mile east of Linden No. 2, 3 and 5 mines, on a branch of the Valley R. R., and is owned by the Davis R'y Coal Co., Canton, Ohio. W. L. Davis is superintendent, and J. J. Evans is mine boss. It is worked on the double entry system with furnace ventilation. The coal is mined by electric power, the Jeffrey mining machines being used to cut the coal. This promises to be one of the large mines of this district. About fifty miners and ten day men are employed.

BEATTIE

Is located on a branch of the C. & P. R. R., about one mile south of Magnolia, and is owned by the Beattie Fire Clay Co. of Magnolia. C. C. Whittacre is the superintendent, and Eli Darrah is the mine boss. It is a drift opening into the No. 5 seam of coal, is worked on the double entry system and has furnace ventilation. The entire out put of this mine is consumed by the clay works. Fifteen miners and five day men are employed.

MAGNOLIA

This mine is located one mile south of Magnolia on a branch of the Valley R. R., and is owned by the Magnolia Coal Co. J. E. Jordan is superintendent and mine boss. This is a shaft opening sixty-six feet in depth to the No. 5 seam of coal, which is about four feet in thickness. The mine is worked on the double entry system and is ventilated by exhaust steam for the present. A fan is to be erected in the near future which will greatly improve the ventilation. From sixty to seventy-five miners, and fifteen day men are employed.

MINES EMPLOYING LESS THAN TEN MEN.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	Number of Men.	P. O. Address.
.....	Drift	Samuel Patton	4	Bowerstown.
.....	"	G. W. Czatt	5	Tappan.
d	"	I. Hogland	3	"
id	"	Wm. Blackwell	2	"
'	"	F. Ramsey	4	Moraville.
.....	"	C. Rogers	5	"
.....	"	A. Tinton	3	Hattonia.
.....	"	J. Keesey	2	Moraville.
s	"	Martin Bros	1	Cadiz.
on	"	J. H. Patterson	2	"
ell	"	J. W. Campbell	1	"
.....	"	Wm. Hedges	3	"
is	"	S. C. Clemens	1	"
.....	"	R. Long	2	"
.....	"	J. W. Rice	3	"
head	"	L. A. Moorehead	1	"
n	"	R. R. Cochran	1	"
.....	Shaft	J. Farr	4	"
No. 2.....	Drift	R. Hedges	3	"
.....	"	Shark & Ross	1	Tippecanoe.
1	"	F. Stephens	1	"
.....	"	J. Fontz	4	"
.....	Shaft	A. J. Evans	2	Freeport.
ts	Drift	J. Sweaney	4	"
.....	Slope	D. F. Hess	5	"
dt	Drift	A. Wyandt	1	Bowerstown.
ie	"	J. McKane	2	"
is	"	J. Landsboro	1	Station 15.
.....	"	E. Snyder	2	Greenough.
1	"	W. Mattern	1	Folks.
.....	"	Wm. Hanna	1	"
.....	"	A. Lease	2	Means.
.....	"	Thos. Leggett	3	Hopedale.
.....	"	James Skelley	4	"
.....	"	D. B. Welch	2	Cadiz.
nd No. 2.....	"	J. Copeland	3	Greenough.
" 3.....	"	H. Copeland	2	Folks.

JEFFERSON COUNTY.

LONG RUN NOS. 1 & 2

mines are located in Mt. Pleasant township on a branch of the W. E. Railway. They are owned and controlled by the W. & L. Pittsburg Coal Co. J. J. Roby of Dillonvale is superintendent, and Fitzgerald is the mine boss. They are drift openings into the No. 8 of coal, worked on the double entry system and ventilated by fans. Coal is mined by the Jeffrey mining machines, which is hauled to the

top of the incline plain by a motor. These mines have worked the entire year. A very dangerous strata of drawslate overlies this vein of coal, and special care is required to prevent accidents, although there were no fatal accidents in this mine during the year. The No. 2 mine was abandoned in the month of November. About two hundred and sixty miners, and fifty day hands find employment. This mine was always found in first class condition.

DILLON NOS. 1, 2 & 3.

These mines are located at Dillonvale on the main line of the W. & L. E. R. R., and are owned by the W. & L. E. & Pittsburg Coal Co. J. J. Roby is the superintendent, and Wm. Fitzgerald is the mine boss. These are drift openings to the No. 8 or Pittsburg seam of coal. These mines are laid out and worked on the double entry system, and are all ventilated by one fifteen foot Brazil fan, which produces an abundance of air. The coal is mined by electric power the Jeffrey mining machines being in use at these mines. A fifteen ton motor is used to haul the coal. Two fatal accidents occurred at this mine during the year. John Kettish was instantly killed by a fall of slate in the number one opening on December 13th, 1898. Andrew Bandick was instantly killed by a fall of rock in the number three opening on June 2nd, 1899. Frequent visits have been made to this mine during the year, and with the exception of one or two visits the mine was always found in good condition. About three hundred and ninety miners and eighty day men are employed at these mines.

KELLEY NO. 2

Is located at Warrentown on the river division of the C. & P. R. R., and is owned by the Kelley Coal Co. E. J. Lewis is the superintendent, and D. B. Brooks is the mine boss. It is a drift opening to the No. 8 seam of coal, and is worked on the double entry system. A new fan was erected during the year, which gives entire satisfaction. The coal is mined by electric power the Morgan Gardner machines being in use at this mine to cut the coal. About forty miners, and ten day men are employed at these works.

MCFADYEN

This mine is located at Carmon on the main line of the P. C. C. & St. L. R. R., and is owned by the McFadyen Coal Co. J. J. Graham is the superintendent, and Daniel Campbell is the mine boss. This is a drift opening to the No. 8 seam of coal, which is here about four and one-half feet in thickness. This mine is worked on the double entry system, and has fan ventilation. The coal is hauled by a small locomotive to the chutes, where it is used almost exclusively for coaling engines on the Pan Handle Railway. About forty miners and from ten to twelve day men find employment at these works.

HIGH SHAFT

This mine is located in Steubenville, and is owned by the Steubenville Coal & Mining Co. It is under the management of Wm. Smurthwaite, and George Arthurs and Wm. Smurthwaite are mine bosses. It is a shaft opening two hundred and eighty feet in depth to the No. 7 seam of coal, which varies in thickness at this point from three feet and six inches to three feet and ten inches. This mine is worked on the "County of Durham" system, and is ventilated by a fan. An electric plant has been installed at this mine during the year, the Morgan Gardner mining machines being used to cut the coal. A six ton motor is used to haul the coal to the bottom of the shaft. This is possibly the oldest mine in the District, this shaft having been sunk in the year 1856 or 1857. The product from this mine of late years has been confined to the city alone, where it is used for domestic purposes. The mine was always found in first class condition. Forty miners and about the same number of day hands are employed.

BERGHOLTZ

This mine is located at Bergholtz and is leased by Kirk & Scheckler. J. G. Kirk is superintendent, and D. W. Scheckler is the mine boss. This is a drift opening to what is called the strip vein, and is worked on the single entry system. The coal is about two and one-half feet in thickness at this point. On June 16th, 1899 I found eighteen miners and five day hands employed.

NEW SLOPE

This mine is located in Springfield township at Bergholtz, and is owned by Hicks & Wilson. E. E. Hicks is the superintendent, and Wm. Bates is the mine boss. This is a slope opening to the strip vein, and is worked on the single entry system. A fan is used as a method of ventilation. This mine is usually kept in first class condition. From fifteen to eighteen miners, and five day men find employment at this mine.

CO-OPERATIVE

This mine is located two miles north of Bergholtz on the main line of the O. R. & L. E. R. R., and is owned by the Ruthven Coal Co. E. E. Hicks is the manager. It is a drift opening to the No. 7 seam of coal, and employs from five to twelve miners, but during the year has worked very irregularly.

ROLLING MILL NO. 2

Is located at Irondale, and is owned by Wm. Banfield. Isaac Thomas is the superintendent and mine boss. It is a drift opening to the No. 7 seam of coal, which is of very poor quality, and ranges in thickness from four to six feet. It is worked on the double entry system, and a furnace is

It is worked on the single entry system, and has always been found in good condition. The output of this mine is consumed at the sewer pipe works. From ten to twelve men find steady employment at this mine.

MINES EMPLOYING LESS THAN TEN MEN.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	Number of Men.	P. O. Address.
Hill	Drift	R. S. Hill	2	Steubenville.
Bates	"	John Bates	4	"
England	"	McFarland & Permar	7	"
Owen	"	B. F. Owen	6	"
Tweed	"	J. D. Tweed	5	"
High Vein	"	John Housholder	2	Irondale.
Excelsior	"	Pat Connor	3	Calumet.
Hill Top	"	Calumet F. C. Co.	6	Toronto.
Nicholson	"	J. Nicholson & Son	4	Dillonvale.
Wesley	"	Charles Wesley	1	Mingo.
Hill	"	John Curfmail	4	"
Markle	"	Kennedy, Cling & Co.	3	Toronto.
Conner	"	Excelsior F. C. Co.	7	Calumet.
Cable Shaft	Shaft	John Manten	5	Wintersville.
Finley	Drift	W. F. Morlan	1	Costonia.
Ball	"	J. F. Ball	3	Calumet.
Taylor	"	W. A. Taylor, Jr.	8	Bergholtz.
Nelson	"	Wm. Nelson	2	Steubenville.
Vankirk	"	Joe. Vankirk	5	"
Jefferson	"	C. F. Young .....	....	Toronto.

CLAY MINE IN JEFFERSON COUNTY.

CALUMET

Is located at Calumet on the river division of the C. & P. R. R., and is owned by the Calumet Fire Clay Co. Samuel McAdoo is the superintendent, and George Knisley is the mine boss. It is a shaft opening about twenty-five feet in depth to the clay seam which is here about eight feet in thickness. The mine is ventilated by steam exhaust and is among the best clay mines in the district, and gives steady employment to about ten miners and three day hands.

GREAT WESTERN CLAY

Is located at Toronto on the Cleveland & Pittsburg R. R., and is owned by the Great Western Fire Clay Co. R. M. Francy is manager, and Daniel Hinkle is the mine foreman. This mine is ventilated by a fan, which also ventilates the Forest City Mine as the two mines are connected.

From ten to twelve miners, and four day hands are employed steadily at this mine.

FOREST CITY CLAY

Is located at Toronto and is owned by the Forest City Clay Co. D. W. Francy is the superintendent, and James Milne is the mine boss. It is a slope opening to the fire clay vein which is about ten feet in thickness. This mine is connected with the Great Western and is ventilated by a fan which ventilates both mines. These mines were in excellent condition on my last visit. From ten to twelve miners are steadily employed at this mine.

MINES EMPLOYING LESS THAN TEN MEN.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	Number of Men.	P. O. Address.
Lacy	Slope	Adolph Pritchard	2	Irondale.
Wallace	Drift	W. Va. F. C. Co.	4	"
Markle	Shaft	Kennedy, Kling & Co. .	8	Toronto.
Connor	Drift	Pat Connor	6	"
Ohio Valley	Shaft	Ohio Valley F. C. Co. .	7	"
Empire	"	Empire F. C. Co.	6	Empire.
None Such	"	Stratton Bros	7	"
Enterprise	Drift	Minor F. C. Co.	4	"
Freeman	"	Freeman F. C. Co.	3	Freeman.
Giant	Shaft	Toronto F. C. Co.	5	Toronto.
Jefferson	"	C. F. Young	3	Empire.
Stratton	"	Stratton Bros	2	"
Standard	Drift	Standard B. Works.	4	"
Minor	"	Minor F. C. Co.	8	"

SECOND ANNUAL REPORT OF WM. K. MOORE.

Inspector of District No. 6.

Hon. R. M. Haseltine, Chief Inspector of Mines, Columbus, Ohio.

DEAR SIR:— I herewith respectfully submit my second annual report of the mines in the Sixth District from November 15, 1898, to November 15, 1899. This has been a year of great activity in the coal trade and a year of peace and prosperity in the mining industries in this section of the state. During the year I have made three hundred and fifteen visits, including fatal accidents, testing scales, and sealing oil wells.

It is with deep regret that I report eight fatal accidents, and one from natural cause. At the Krause No. 3 mine located in Stark County, Ohio, on February 4th, Peter Fistchnist came to his death by a fall of coal while undermining at the face of his room. At the same mine on November 2nd Samuel Emser, who was engaged in drawing pillars, came to his death by a fall of rock while loading his car. At the Central Mine on February 28th Elmer Kuhn came to his death by a fall of coal at the face of his room. At East Goshen Mine No. 1 on April 10th Patrick Donahue was injured by a fall of rock in room No. 36, on the No. Two West Entry, there being a slip in the top which caused it to fall out just as he was driving an empty car to the room. He died from the injuries sustained on April 25th. At the Buckeye Mine, Tuscarawas County, Ohio, on May 22nd W. A. Rinkle came to his death by a large fall of rock while working at the face of his room. At Wainwright No. 4 Mine on May 31st Joseph Benza came to his death while taking down a horse back at the face of his entry, a portion of it coming upon him causing instant death. At Clover Hill Mine, Stark County, Ohio, on June 2nd Frederick Gern came to his death by a fall of draw slate while working at the face of his room. At the Eureka Mine, Stark County, Ohio, on July 11th John Peters was found dead in the mine. The evidence at the Coroner's Inquest showed that he was subject to organic heart trouble prior to his death. At the Upper Pigeon Run Mine, Stark County, Ohio, on July 27th Frederick Walker came to his death by a large fall of rock while working at the face of his pillar.

The list of permanent improvements made during the year is itemized as follows: For the purpose of better ventilation ten furnaces were built, six fans erected, sixteen air shafts sunk, eight second openings, and six ladders and stairways were built, four speaking tubes for better communication between the bottom and top of shaft, and for increased safety the cages of four shafts were fitted up with safety catches. It gives me great pleasure to report that so far I have not been compelled to resort to litigation to enforce a compliance with the law. On the contrary I have been very courteously treated by the miners, and operators alike and any suggestions I saw fit to offer for the health and safety of the miners have been very readily complied with.

Trusting the coming year at the advanced rate of mining will witness a larger success in the coal trade than the one just past, and thanking you for your assistance rendered during the year, I remain,

Very truly yours,

WM. K. MOORE,

Inspector of Fifth District.

North Lawrence, Ohio, November 15th, 1899.

STARK COUNTY.

MINGLEWOOD SLOPE

Is located near the village of North Lawrence, Lawrence Tp., on the P. F. W. C. & W. and L. E. R. R., and is owned by James Mullins, Wooster, Ohio. Wm. Baumgartner is the superintendent, and John Ryan is the mine boss. This mine is opened to the No. 1 or Massillon seam of coal, which is here four and one half feet in thickness, and is worked on the double entry system. Three visits were made during the year. On December 5th and 6th in company with Richard Carter, fire boss and John T. Evans, ex-fire boss, and John Ryan, mine boss, we made an examination of the old workings and no gas was discovered. Fifty miners and twenty-two day hands are employed at this mine. Since this time the old slope has been abandoned and the pillars are being taken out at the new opening or Minglewood shaft No. 4.

MINGLEWOOD SHAFT NO. 1

Is located near the slope, and ship their product over the same road. It is operated and managed by the same persons. This shaft is worked out except the pillars, being used as an inlet for No. 4. The drawing of the pillars has been suspended until the old slope is finished.

MINGLEWOOD SHAFT NO. 2

Is situated at North Lawrence, Ohio, on the same railroads as the slope, and is managed by the same parties. This is a shaft twenty-eight feet deep, worked on the double entry system, exhaust steam being used as a ventilating power. The coal not being very deep presents a soft appearance, and is mined as a run of mine during the winter months, and suspended during the summer when the demand is not so great. Twenty miners, and five day hands are employed. The general condition of the mine is fair.

MINGLEWOOD MINE NO. 3

Is located in Tuscarawas Township, on the same road as the other mines. Wm. Baumgardner is the superintendent, and Wm. Moffitt is the mine boss. This is a shaft two hundred and eight feet deep into the Massillon

seam which is here four and one-half feet thick. One hundred and sixty miners, and thirty day men are employed; also thirty-eight boys between the ages of fifteen and twenty-one are employed at this mine. I have tested the scales of this mine twice during the year and found them correct, and with the exception of the safety catches being out of repair I have always found the mine in good condition. Seven visits were made during the year.

MINGLEWOOD SHAFT NO. 4.

This is a new mine located in Tuscarawas Township, near No. 3, and the same railroads are used for shipping purposes as the other mines. John Ryan has entire supervision. This is a shaft two hundred feet deep, worked on the double entry system, and fans are used as a ventilating power. The coal is of a very good quality but lays very disturbed with horsebacks, making it a very expensive and very difficult mine to manage. The ventilation will never be very satisfactory until the old slope and shaft No. 1 is finished and a new air shaft sunk. The scales were tested four times during the year, and found correct with the exception of one time when they were resting on a two by four which was put rather close to prevent them from falling in case they became loose. Ten visits were made during the year. Ninety-one miners, and eighteen day men are employed.

CENTRAL

This is a shaft opening two hundred and sixty feet in depth located on the Wheeling and Lake Erie R. R., in Tuscarawas Township. It is owned by the Central Coal Co. Phillip Sonhalter is superintendent, and John Hammer is the mine boss. This mine is worked on the double entry system, and exhaust steam is used as a ventilating power. Sixty-two miners and eleven day hands are employed. The permanent improvements for the year were, an air shaft, ladders and safety catches. The scales were tested and found correct. The general condition of the mine is fair.

DRAKE

This is a shaft one hundred and sixty-five feet in depth, situated on a branch of the P. F. W. & C. R. R. It is owned by the Drake Coal Co., with E. E. Fox as superintendent, and F. J. Kellar as mine boss. It is worked on the double entry system, into the Massillon seam of coal which is here five feet in thickness. Seventy-two miners and eighteen day men are employed. New air shaft, and fan also a new speaking tube are the improvements for the year. Nine visits were made in which the safety catches and scales were tested and found in good working order.

WARWICK

This is a shaft opening two hundred feet in depth to the No. 1 or Massillon seam of coal situated on the Wheeling & Lake Erie R. R., and is owned by the Warwick Coal Co. Geo. Swier is the superintendent, and C. E.

Swier is the mine boss. It is worked on the double entry system and is ventilated by a fan. Eighty-one miners and day hands are employed. Four visits were made during the year, and the scales tested several times and found correct. On my last visit to this mine I found the slides in the air shaft in bad condition, which I ordered repaired at once.

UPPER PIGEON RUN

Is located near West Brookfield, Tuscarawas Township, on the Wheeling and Lake Erie R. R. It is owned by the Upper Pigeon Run Coal Co. Geo. Swier is the superintendent, and Fred Gresser is the mine boss. This shaft is two hundred and fifty feet in depth into the No. 1 or Massillon seam of coal. On my last visit fifty-seven miners and day hands were employed drawing the pillars. Since this time the mine has been abandoned.

WESTERN OHIO MINE

Is situated on the Wheeling & Lake Erie R. R., and is owned and operated by the West Lebanon Coal Co. J. L. Green is superintendent, and N. Davis is the mine boss. It is a shaft opening ninety feet deep to the Massillon seam of coal, which is worked on the double entry system. Exhaust steam and fan are used as a ventilating power. Forty-two miners and day hands are employed. Five visits were made during the year, scales tested twice and found correct. This mine has also been abandoned.

WEST MASSILLON NO. 3

Is located near North Lawrence, Ohio, on the P. F. W. & C. R. R., and is operated by the E. G. Krause Coal Co. C. R. Klein has entire supervision. This is a shaft opening forty feet in depth into the No. 1 seam of coal which is here five feet in depth. It is worked on the double entry system and ventilated by a fan. Forty miners and ten day men are employed drawing back the pillars, and expect to finish the coming fall. The scales were tested and found correct.

STANWOOD NO. 4

This is a shaft opening two hundred feet in depth opening to the Massillon seam of coal which is here six feet in thickness. This mine is located near Stanwood on the C. L. & W. R. R., and is operated by the E. G. Krause Coal Co. Henry Leahy is the superintendent and mine boss. Fifty miners and sixteen day hands are employed. During my three visits to this mine, safety catches and scales were found in good working order, and the general condition of the mine has been very satisfactory to the department.

KRAUSE NO. 5

Is a shaft opening ninety-seven feet in depth, situated near the village of Pigeon Run on the W. & L. E. R. R., and is operated by the E. G. Krause Coal Co. Two visits were made to this mine, since which time the pillars have been withdrawn and the mine abandoned.

WOODLAND

This is a shaft two hundred and fifty feet deep, situated near the village of East Greenville, Ohio, on the C. L. & W. R. R., and is owned by the Wainwright Coal Co. D. R. Jones is the superintendent and mine boss. It is worked on both the single and double entry system. Exhaust steam and fan are used for ventilation. Fifty miners, and fifteen day hands are employed. Scales were tested during the year and found correct.

NORTH MASSILLON NO. 2

This is a shaft one hundred and fifty feet in depth, located on the P. F. W. & C. and C. L. & W. R. R., and is owned by the Ridgeway Burton Coal Co. John Hodgson is superintendent and mine boss. This opening is in the Massillon seam and is four and a half feet in thickness. It is worked on the double entry system. For means of better ventilation there has been a new air shaft and fan erected and for increased safety two new ropes and safety catches; for better communication between bottom and top of shaft a new speaking tube has been placed. Scales were also tested and found correct, placing the mine in a very satisfactory condition. One hundred miners, and twenty-two day hands are employed.

HERNBROOK

This is a shaft one hundred and fifty feet in depth located in Lawrence Township on a branch of the P. F. W. & C. R. R., and is owned and operated by the Ridgeway, Burton Coal Co. Wm. Crooks has the entire supervision. It is worked on the double entry system and fan ventilation is used. Fifty miners, and sixteen day hands are employed in drawing back the pillars. The tittle and shaft are somewhat out of repair having been used for fifteen years. The ventilation in this mine is very good.

WILLOW SPRINGS NO. 1

This mine has been abandoned.

WILLOW SPRINGS NO. 2

Is located near North Industry on the Valley Railway, and is owned by the Ridgeway, Burton Co. Alex Lindsey is the mine boss and superintendent. This is a drift opening, worked on the double entry system, and employs thirteen miners and two day hands. A new air shaft and furnace are the permanent improvements for the year. This mine is also found in very good condition.

FAILOR MINE

Is located near North Industry on the same railroad and is operated by the same parties as the Willow Springs. It is a drift opening into the No. 6 seam of coal, which is here three and one-half feet in thickness. It is worked on the double entry system, and is ventilated by a furnace. Thirty-eight miners and day men are employed. Three visits were made to this mine during the year.

YOUNG'S SHAFT

Is located at East Greenville on the Wheeling and Lake Erie R. R., and is owned by the Pocock Coal Co. C. A. Kouth is the superintendent, and mine boss. This is a shaft opening two hundred and forty-eight feet in depth, worked on the double entry system and is ventilated by a fan. One hundred and two miners, and thirty-two day hands are employed. Six visits were made to this mine during the year. The scales were tested several times, and found correct. The general condition of this mine has been very satisfactory to the Department.

EUREKA

Is located on the Cleveland, Lorain & Wheeling R. R., and is owned by the Massillon & Cleveland Coal Co. Louis Brenkamp has entire supervision. This is a shaft opening one hundred feet in depth and penetrates the Massillon seam of coal, which is here four feet in thickness. Seventy-five miners and twenty day hands are employed. Three visits were made during the year. The scales were also tested and found correct. A new air shaft, fan and stairways are the permanent improvements for the year.

WEST BROOKFIELD

This is a shaft opening located on the Wheeling & Lake Erie Railroad in the village of West Brookfield, and is owned by the Massillon Mining Co. R. W. Jones is the superintendent, and J. E. English is the mine boss. This shaft is one hundred and seventy-eight feet in depth to the No. 1 or Massillon seam of coal which is here about four and one-half feet in thickness. It is worked on the double entry system, and employs seventy-four miners and day hands. Three visits was made during the year. An air shaft and fan are the permanent improvements for the year at this mine. The safety catches and scales were tested and found in good working order.

CLOVER HILL

Is located in Lawrence township on a branch of the C. A. & C. R. R., and is owned by the Fox Lake Coal Co. John Featherstone is the superintendent, and mine boss. This is a shaft opening one hundred and

seventy feet in depth, and employs forty miners and fourteen day hands. Exhaust steam and fan are used as a means of ventilation. Four visits were made to this mine during the year, and since that time the mine has been abandoned.

NEW GREENVILLE

Is situated in the village of East Greenville on the W. & L. E. R. R., and is owned by the Howells Mining Co. Wm. James is superintendent, and Mat English is the mine boss. This shaft is two hundred and sixty-one feet deep, worked on the double entry system, and a fan is used as a mode of ventilation. It penetrates the No. 1 seam of coal, and employs one hundred miners and twenty day hands. The buildings of this mine are fire proof. Five visits were made during the year, and with the exception of the scales which were tested and found in bad order, this mine was always found in good condition.

CAMP CREEK

Is situated on the C. L. & W. R. R., and is owned by the O. Young Coal Co. Joseph Collier is the superintendent and mine boss. This is a shaft opening into the Massillon seam of coal, one hundred and fifty feet in depth. Two visits were made since which time the mine has been abandoned.

NUTWOOD

Is situated on the C. L. & W. R. R., near the village of Elton. Wm. Penman is superintendent, and Edward Penman is the mine boss. It is a shaft opening one hundred and fifty feet in depth, worked on the double entry system, and exhaust steam is used as a ventilating power. Thirty-five miners, and ten day hands were employed. Two visits were made to this mine during the year, and the scales tested once. The mine has since been abandoned.

ELM RUN NO. 3

Is situated on the C. C. & S., and the C. L. & W. R. R., near the village of Elton, and is operated by the Elm Run Coal Co. Wm. Penman is superintendent and mine boss. This shaft penetrates the No. 1 seam of coal at a depth of one hundred and fifty feet, the coal at this point being five feet in thickness. A new air shaft and fan are the improvements for the year. Twenty-five miners and eight day hands are employed. The scales of this mine were tested and found correct. Safety catches and ropes were also found in good condition.

ELM RUN NO. 4

Is situated on the same railroads as the No. 3, and is owned and operated by the same parties. It is two hundred and twelve feet in depth, and a fan is used as a mode of ventilation. A new air shaft and fan are

the improvements for the year. I tested the scales and found them weighing correctly. The ventilation and condition of this mine are fair. Three visits were made to this mine during the year.

SUMMIT HILL

Is situated near the village of Greentown on the Valley Railway, and Louis E. Smith is the owner and superintendent. Peter Dearoff is the mine boss. This is a drift opening into the No. 4 or the Limestone seam of coal, which at this point is six feet in thickness, including a strata of stone in the center. It is worked on the double entry system, and employs twenty-five miners and seven day hands. Two visits were made during the year. On my first visit the miners were on a strike, and upon my second visit I found the mine idle. The general condition of this mine has always been very satisfactory.

MASSILLON STANDARD

Is situated near the village of Navarre, on the Ohio Canal, and is owned by Fred H. Hess. George Ray is superintendent and mine boss. It is a shaft opening thirty feet in depth and penetrates the Massillon seam of coal, which is here three and one-half feet in thickness. It is worked on the double entry system, and exhaust steam is used as a ventilating power. This mine is nearing the old Beaver Run Slope which is full of water. This mine has been surveyed, and the rooms are all kept drilled ahead with search holes and every precaution is being made to prevent the water from breaking in. Five visits were made to this mine during the year. Eighteen miners and day hands are employed.

LAKE ERIE NO. 2

Is located in Osnaburg township, on a branch of the Wheeling & Lake Erie Railway, and is owned by the Monongahela & Lake Erie Coal Co. E. H. Jones is the superintendent and mine boss. It is worked on the double entry system, and employs twenty miners and six day hands. It is a drift opening and penetrates the No. 6 seam of coal. The general condition of this mine is fair for this seam of coal.

CRYSTAL SPRINGS

Is situated near the village of Millport on the Cleveland, Lorain & Wheeling Railway, and is owned by the Crystal Coal Co. J. B. Moore is superintendent, and mine boss. This is a shaft opening seventy feet in depth to the No. 1 seam of coal, which is here four feet in thickness. Exhaust steam is used as a means of ventilation. Ten miners and four day hands were employed on my last visit.

MCGINTY

Is situated near Louisville on the P. F. W. & C. R. R., and is owned and operated by the Louisville Brick and Tile Co. This is a drift opening into the No. 6 seam of coal, which is here three feet in thickness. Oliver Brumbaugh is superintendent, and Sherman Harsh is the mine boss. Ten miners, and four day hands are employed. A new air shaft and furnace are the improvements for the year. The double parting is also being timbered as ordered, which places the mine in fair condition.

MINES OF CLAY AND COAL EMPLOYING LESS THAN TEN MEN.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	Number of Men.	P. O. Address.
Sausser	Drift	J. M. Sausser.....	3	Osnaburg.
Plotner	"	D. Plotner	7	"
Dehoff	"	C. Dehoff	2	"
Meiser	"	B. Meiser	2	"
Mark	"	John Mark	3	"
Reibenstein	"	Wm. Reibenstein	4	"
Harman	"	Thos. Harman	12	"
Bixby	"	Harvey Bixby	12	"
Snyder	"	Snyder Coal Co.....	12	"
Smith	"	Albert Smith	5	"
Lahmiller	"	Lahmiller & Kitzmiller..	9	Waco.
Thouvenin	"	Thouvenin Bros	8	"
Snyder	"	Wm. Snyder	3	"
Kramer	"	A. Kramer	2	"
Heims	"	F. Heims	7	"
Ball	"	Albert Ball	8	North Industry.
Fox Run	Slope	H. Simmons	3	Canal Fulton.
Davis	Shaft	D. Davis	9	Alliance.
Carr	"	A. M. Carr.....	9	"
Robertson	"	J. J. Robertson.....	4	" Abandoned.
Eureka	Drift	Mordick & Young.....	4	New Berlin.
Camp Clay Mine.....	"	H. B. Camp.....	8	Aultman.
Brush Hill	Slope	Brush Hill Coal Co.....	5	Newman.
Waynesburgh B. & T. Co	Drift	Waynesburg B. & T. Co.	8	Waynesburg.
Canton, Osnaburgh B. & T. Co.....	"	Z. Doll, Supt.....	8	Canton.
Massillon S. & F. B. Co	"	W. G. Hipp, Supt.....	9	Massillon.
Reichard & Stone.....	Shaft	Reichard & Stone.....	6	Alliance.
Lowe	"	L. C. Lowe.....	8	"
Canton Pottery	Drift	Canton Pottery Co.....	9	Canton.
Rice	"	Elijah Rice	5	Osnaburgh.
Bollinger	"	F. Bollinger	7	"
Barnhart	Shaft	Vanderbush & Barnhart.	8	Canton.

TUSCARAWAS COUNTY.

MAPLE GROVE

Is situated at Uhrichsville, and is owned and operated by the Schindler Bros. This is a drift opening into the No. 6 seam of coal, worked on the double entry system, and a furnace is used as a ventilating power. This is a retail mine. On my two visits to this mine I found it in a very satisfactory condition. Also tested the scales and found them weighing correctly. Fifteen miners and four day hands are employed.

EAGLE HILL

Is located in Fairfield township, near Zoar station on a branch of the Cleveland & Pittsburg R. R., and is owned by W. R. Jones. Ebenezer Jones is superintendent, and mine boss. It is a drift opening into the No. 6 seam of coal, which is here four feet in thickness. It is worked on the single entry system, and employs thirty-five miners and seven day hands. A second opening and a furnace are the permanent improvements for the year.

MASSILLON PEACOCK

Is located at Mineral Point, on the Valley Railway and is owned by E. Van Kirk. John Puncheon is superintendent and mine boss. It is a drift opening into the No. 5 seam of coal, worked on the double entry system and a furnace is used as a means of ventilation. Fifty-one miners and seventeen day hands are employed. The scales were tested and found correct. During my visits to this mine I found the ventilation good and the mine in good condition.

TUNNEL NO. 5 MINE

Is located near Mineral Point on a branch of the Cleveland & Pittsburg Railway, in Sandy township, and is owned and operated by the Tunnel Mining Co. John Brick has entire supervision. There are two openings here, one into the No. 6 seam of coal, and the other into the No. 5 seam. It is a drift opening worked on the double entry system, and has furnace ventilation. Thirty-five miners and eight day men are employed.

ROCK CUT

Is situated at Rock Cut on the Valley Railway and is owned by George J. Markley. E. L. Jones is the superintendent and mine boss. This is a slope opening into the No. 5 seam of coal which is here four feet in thickness. It is worked on the single entry system and a furnace is used as a mode of ventilation. Fifteen miners and seven day hands are employed. The ventilation of this mine is fair for the single entry system.

HUFF'S RUN

Is located on the Valley Railway in the village of Mineral Point, and is owned by the Ridgway Burton Co. J. J. Klien is the superintendent and mine boss. It is a drift opening into the No. 5 seam of coal, which is here from three and one-half to four feet in thickness. It is worked on the double entry system, and has furnace ventilation. Sixty miners and twenty-three day hands are employed. A new furnace and tail rope haulage are the permanent improvements for the year.

ACME

Is located at Mineral Point on a branch of the Valley R. R., and is owned by G. J. Markley. George F. Brick is the superintendent, and mine boss. It is a drift opening into the No. 6 seam of coal, worked on the double entry system and is ventilated by a furnace. Eighteen miners and four day men are employed. The general condition of this mine is very good.

SOUTH SIDE

Is situated in Mineral Point on the Valley Railway and is owned and operated by C. E. Holden. Thomas Osborn is the superintendent and mine boss. It is worked on the double and single entry system, and is ventilated by a furnace. Twenty-four miners of clay and coal are employed and six day hands. The general condition of this mine is fair for the single entry system.

GORDON

Is located at Mineral Point on a branch of the Cleveland & Pittsburg Railway, and is owned by the Gordon Coal Co. C. C. Smith is superintendent and mine boss. It is a drift opening into the No. 6 seam of coal, worked on the single entry system and employs six miners and three day hands. This mine has since been abandoned.

AMERICAN FIRE BRICK CO.

Is situated in Sandy township near the village of Mineral Point on the Valley Railway, and is owned by the American Fire Brick Co. G. J. Markley is the superintendent, and Charles Schiedcker is the mine boss. This mine is worked on the single entry system, and uses furnace ventilation. Ten miners of coal and clay are employed. On my first visit to this mine I found some breakthroughs open on the main entry which was ordered made up. Also tested the scales and found they were not weighing correctly. I ordered these repaired at once.

SWAN

This is a mine situated near the village of Sandyville on the Valley Railway, and is owned by the Swan Coal Co. John Miser is superintendent and mine boss. This mine is opened into the No. 5 seam of coal, which is

here three feet in thickness. It is worked on the single entry system, and employs eight miners and two day men. A second opening is the improvement for the year. The scales were also tested and found correct. The force of miners having fallen off at this mine, the ventilation is very good.

SHANESVILLE

Is located in Sugar Creek township on the Wheeling and Lake Erie R. R., near the village of Shanesville and is owned by the Drake Coal Co. D. R. Thomas is the superintendent and mine boss. It is a drift opening worked on the double entry system, and a furnace is used as a means of ventilation. Three visits were made to this mine during the year. I tested the scales and found them weighing correctly.

Since the overcast was taken out and the back of the furnace cleaned out the ventilation has been somewhat better. Fifty-four miners and fourteen day men are employed.

GOSHEN NO. 2

Is situated near the village of Beidler on the Cleveland, Lorain & Wheeling R. R. in Goshen Township and is owned by the Goshen Coal Co. Joseph Brockenshire is the superintendent and John Dougal is the mine boss. It is a drift opening into the No. 6 seam of coal which is here four feet in thickness. It is worked on the double entry system and is ventilated by means of a furnace. One hundred and thirty miners and twenty-five day hands are employed. Four visits were made to this mine during the year. Tested the scales and found them accurate. The general condition of this mine has been very satisfactory to the department.

EAST GOSHEN NO. 1

Is located five miles and a half east of New Philadelphia in the village of Vickers on a branch of the Cleveland & Pittsburgh R. R. It is owned by the East Goshen Coal Co. with Joseph Brockenshire as superintendent and S. J. Miles as mine boss. It is a drift opening into the No. 6 seam of coal worked on the double entry system, and is ventilated by a furnace. Two hundred miners and twenty-six day men are employed at this mine. Three visits were made during the year. Scales were tested and found correct.

EAST GOSHEN NO. 2

Is located on the same railroad as the No. 1 and is owned by the same parties. Joseph Brockenshire is the superintendent, and Wm. Hanson is the mine boss. It penetrates the No. 6 seam of coal which is here four feet in thickness. It is worked on the double entry system and employs fifty

miners and ten day hands. Three visits were made during the year. A new fan is the permanent improvement for the year which places the mine in a very good condition. The scales were also tested and found correct.

STILLWATER OR HOUK MINE

Is situated on the Cleveland, Lorain & Wheeling R. R., in the village of Stillwater, and is owned by the Dover Coal Co. John Price is the superintendent and mine boss. This is an opening into the No. 7 seam of coal which is five feet in thickness at this point. Thirty-five miners and ten day hands are employed at this mine. A new furnace, a second opening are the improvements for the year. Four visits were made, and scales tested and found correct.

NEWPORT

Is located in the village of Newport on the Cleveland, Lorain & Wheeling R. R., and is owned by Erhard Coal, Oil & Gas Co. John Fisher has the entire supervision. This is a drift opening into the No. 6 seam of coal, worked on the double entry system, and a furnace is used as a ventilating power. Thirty miners and seven day hands are employed. Two visits were made, since which time the mine has been suspended.

MIDVALE NO. 2

Is situated on the Cleveland, Lorain & Wheeling R. R., and is owned and operated by the Midvale Goshen Coal Co. Frank McIntosh is the superintendent and W. L. Moke is the mine boss. Two hundred miners and thirty day men are employed in taking out the No. 6 seam of coal which is here four and one-half feet in thickness. It is worked on the double entry system, and is ventilated by a furnace. On my last visit to this mine they had about completed a new air shaft, which when completed will place the mine in good condition. Five visits were made during the year, in which the scales were tested several times and found to be weighing correctly.

MIDVALE NO. 3

This mine has been abandoned.

WAINWRIGHT NO. 4

Is located on the Cleveland, Lorain & Wheeling Railway, in the village of Wainwright, and is owned and operated by the Midvale Goshen Coal Co. Frank McIntosh is superintendent, and Dan Morris is the mine boss. This is a drift opening into the No. 6 seam of coal which is four feet in thickness at this point. It is worked on the double entry system, and employs one hundred and seventy-five miners and thirty-five day men. A new air shaft and furnace makes this one of the best ventilated mines in this District. The scales were tested and found correct.

WAINWRIGHT NO. 5

Is situated on the Cleveland, Lorain & Wheeling R. R., near the village of Wainwright and is owned and managed by the same parties as the No. 4. The scales were tested at this mine and found correct. On my two visits to this mine I found it in a very good condition. Twenty-two miners and four day hands are employed.

SOMERDALE NO. 1

Is located on the Wheeling & Lake Erie R. R., in the village of Somerdale, and is owned and operated by the Somerdale Coal Co. Frank McIntosh is the superintendent, and Wm. Lewis is the mine boss. This is a drift opening into the No. 5 seam of coal, and is worked on the double entry system. It is ventilated by a furnace, and employs thirty-five miners and ten day hands. On my last visit to this mine I found it in a very good condition, a second opening having been made which shortened the course of air reducing the friction somewhat improving the ventilation. Three visits were made during the year, and the scales tested and found correct.

SOMERDALE NO. 2

Is situated near No. 1 on the same railway and is operated and managed by the same parties. It is a drift opening into the same vein of coal, and a furnace is used as a ventilating power. Owing to the scarcity of miners this mine was not in operation very much of the year. Six miners and two day hands were employed on my last visit. The general condition of this mine is fair.

TWIN CITY

Is situated in the city of Dennison on the P. C. C. & St. L. Ry., and is owned by the Dennison Coal Co. Joseph Ramage is the superintendent, and Henry Tomlinson is the mine boss. This is a drift opening into the No. 6 seam of coal, worked on the single entry system and is ventilated by means of a furnace. Twenty-three miners and eleven day hands are employed. On testing the railroad scales at this mine I found they were not weighing correctly, and after spending three or four days with the company we found that we could not repair them and ordered a new Hopper scale put in which was complied with at once. Since that time the scales have weighed correctly. New scales and second opening are the permanent improvements for the year.

TRENTON

Is situated in the village of Trenton on the Ohio Canal and is owned by H. C. Minnich. A. S. Singer is the superintendent and mine boss. This is a drift opening into the No. 6 seam of coal, worked on the double

entry system and a furnace is used as a ventilating power. Fifteen miners and four day hands are employed. The scales were tested and found correct.

MOREY RIDGE

Is situated on the Ohio Canal near the village of Beidler and is owned by C. J. Nungesser. Gottlieb Affolder is superintendent and mine boss. This is a drift opening into the No. 6 seam of coal which is here four feet and a half in thickness. It is worked on the double entry system, and employs fifteen miners and five day men. On my last visit to this mine I found they were idle owing to the low water in the canal. I have always found this mine in a very satisfactory condition.

NEW CASTLE

Is situated on the Ohio Canal near New Castle Lock and is owned by the New Castle Coal Co. C. D. Grimes is the superintendent and John Campbell is the mine boss. This mine is opened into the No. 6 seam of coal and is worked on the single entry system. A furnace is used as a mode of ventilation. Thirteen miners and three day hands are employed. On my first visit to this mine I ordered a second opening and the mine surveyed. Also found them a little careless with the furnace. Since this time the mine has been fair in regard to the ventilation for the single entry system.

MINES EMPLOYING LESS THAN TEN MEN.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	Number of Men.	P. O. Address.
Crown Fire Brick Co. (Coal)	Drift	Crown Fire Brick Co...	4	Canal Dover.
Crown Fire Brick Co. (Clay)	"	" "	6	" "
Lancer (Coal)	"	J. Lancer	8	" "
Horn No. 1 (Coal)...	"	J. Horn	4	" "
Horn No. 2 "	"	"	5	" "
Horn No. 3 "	"	"	5	" "
Newman "	"	Geo. W. Kail.....	6	" "
Walick "	"	P. Walick	3	" "
Reeves "	"	P. Reeves	2	" "
Winkler "	"	R. Winkler	2	" "
Reinhart "	"	S. Reinhart	3	" "
Dashook & Wolf (Coal)	"	Dashook & Wolf.....	4	" "
Hardwick (Coal)	"	Hardwick Coal Co....	4	" "
Buckeye Fire Clay Co. (Clay)	"	Buckeye F. C. Co.....	7	Uhrichsville.
Uhrichsville Fire Clay Co. (Clay)	"	Uhrichsville F. C. Co...	6	"
Uhrichsville Fire Clay Co. (Coal)	"	" "	5	"
Buckeye Fire Clay Co. (Coal)	"	Buckeye F. C. Co....	4	"
Diamond Fire Clay Co. (Clay)	"	Diamond Fire Clay Co..	5	"
Diamond Fire Clay Co. (Coal)	"	" "	7	"
Mazurie (Clay)	"	J. J. Mazurie.....	2	"
Oliver (Coal)	"	Oliver Coal Co.....	7	Dennison.
Skeels "	"	Wm. Skeels	9	"
Rolling Mill (Coal)...	"	Dennison Roll. Mill Co.	9	"
Advance Fire Brick Co. (Clay)	"	G. Markley	7	Mineral Point.
Advance Fire Brick Co. (Coal)	"	"	8	" "
Lobby (Coal)	"	Lobby Coal Co.....	8	" "
Buckhorn	"	Geo. Marklev	8	" "
Garver	"	Cash. Garver	9	Strasburg.
Brown	"	G. Brown	5	New Philadelphia.
Burtscher	"	Burtscher Coal Co....	5	" "
Emerson	"	J. Emerson	7	" "
Mathias	"	J. Mathias	6	" "
Grimm	"	B. L. Grimm.....	8	" "
Campbell	"	J. Campbell	4	" "
Dunn	"	J. Dunn	4	" "
Patrick	"	Patrick Coal Co.....	8	" "
Shillings	"	Joseph Shilling	9	Canal Dover.

WAYNE COUNTY.

WAYNE SLOPE NO. 1

Is located one half mile north of Doylestown, Ohio, on the Erie Railway, and is owned by the Wayne Coal Co. O. V. Dibble is superintendent, and Cyrus Evans is the mine boss. This is a slope opening into the Massillon seam of coal which is here three and one-half feet in thickness. It is worked on the single entry system, and a furnace is used as a mode of ventilation. Since my last visit to this mine it has been abandoned.

WAYNE SLOPE NO. 2

Is situated near the No. 1 slope and is owned and operated by the same parties. This is a new mine opened into the Massillon seam of coal which is here three and one-half feet in thickness. It is worked on the double entry system, and exhaust steam is used as a ventilating power. Eight miners and four day hands were employed on my last visit.

DALTON

Is situated near Dalton on the Wheeling & Lake Erie R R., and is owned by the Howells Mining Co. Anthony Owens has entire supervision. This is a shaft one hundred and fifty feet in depth into the Massillon seam of coal which is here four and one-half feet in thickness. Forty miners and sixteen day men are employed. Scales were also tested and found correct. Since my last visit this mine has been abandoned.

MOBILE

Is situated near Doylestown, Ohio, and is owned by Baysinger & Duncan. F. W. Baysinger is the superintendent and John Duncan is the mine boss. This is a drift opening into the No. 1 or Massillon seam of coal, and seven miners and three day hands are employed in supplying coal for the neighborhood. I tested the scales and found them correct. The ventilation of this mine is fair.

PEACOCK

Is situated near the Mobile Mine. It is a drift opening into the Massillon seam of coal and is worked on the single entry system. John Santrock is the owner and manager. Three miners are employed.

CALIFORNIA

Is situated near the Mobile and Peacock Mines and is owned by Seiberling & Miller. Wm. Albright is superintendent and mine boss. This is a drift opening into the Massillon seam of coal, and a furnace is used as a ventilating power. Six miners and four day men were employed on my last visit.

REPORT OF REES T. DAVIS.

Inspector of the Seventh District from November 15, 1898, to November 15, 1899.

R. M. Huseltine, Chief Inspector of Mines, Columbus, Ohio.

DEAR SIR:— I have the honor of submitting to you my annual report for the year ending November 15, 1899 in regard to the conditions and improvements of the mines of the Seventh District.

The Greenamyer Shaft located near Salem and owned and operated by John Howells was visited with a fire, gas igniting from a shot that was fired in the evening when the men had quit work, thus giving the fire a start of from fourteen to fifteen hours or until the miners returned to their work the next morning when they discovered the mine full of smoke and foul air or after damp. As this mine is dependent upon natural pressure for its ventilation it was soon filled up with smoke on both sides. When I arrived on the scene I immediately ordered artificial means in order to secure a current of air into the mine which was accomplished by erecting a fan which gave the desired results. When volunteers entered the mine almost to the place where the fire started it was bratticed off and made air tight thereby smothering it out and thus permitting the miners to resume their work on the outside of the enclosed fire. This is the second occurrence of this kind that has visited my district in my term of service as District Mine Inspector. From my experience with these fires together with close observation my opinion is that the law should be so amended that mine owners should be compelled to arrange the ventilating power so that the air current could be reversed at a moment's notice. I am sure if this could be done and the law complied with, it would save the lives of the miners as well as protect valuable property and also the saving of time because it would enable the men to get nearer the seat of the fire on the one side, and by reversing the current they could get on the other side thus enabling them to brattice it off so that it could be confined and finally smother it out.

The general condition of nearly all the mines in the district at the close of the year was satisfactory. There are one or two mines that are not in as good condition as they might be, but this is due to the inattention of the parties directly in charge of the mine rather than to the operators or owners, who as a rule, are anxious to have their mines in as good and safe condition as possible, so that accidents and other delays may not occur.

A brief description of the improvements, fatal accidents and other matter which may be interesting and useful will be embodied in the report which follows.

In conclusion I wish to thank the miners and operators for the many courtesies received at their hands, and also thank you for the able counsel and advice I have received during the year.

Yours very truly,

REES T. DAVIS,
Inspector of Seventh District.

East Palestine, Ohio, November 15, 1899.

COLUMBIANA COUNTY.

CAMPBELL

Is located in Middleton Township on the Pittsburg, Lisbon & Western Ry., and is owned by the East Palestine Coal Co. W. S. Lewis is superintendent and P. H. Murphy is mine boss. This is a drift opening into the No. 6 vein of coal and will average about two feet and seven inches in thickness. It is worked on the single entry system and is ventilated by means of a furnace. About twenty-five miners and three day hands are employed. The ventilation throughout the year has been good. This mine has been troubled with faults, the sand rock cutting out the coal on the right and the left entries. The main face entry has also struck the same fault as the butt entries. The company cut through the fault in the second left entry which was one hundred and twenty-five yards in length when the coal was reached. After driving some two hundred and twenty-five yards in the coal a second fault was struck again cutting out the coal. This mine is anything but encouraging, and at the end of the year it looks as if the mine would soon be abandoned on account of so many faults as above stated.

QUAKER VALLEY

Is located at Rogers on the Pittsburgh, Lisbon & Western R. R., and is now owned by the Sterling Mining Co., purchasing it from the receiver of the Quaker Valley Mining Co. John Hileman is superintendent, and Wm. Weikart is mine boss. This is a drift opening into the No. 6 vein of coal which is here about thirty-four inches in thickness. It is worked on the single entry system, and is ventilated by means of a fan. About twenty-five miners and six day hands are employed. This mine has been kept in a fair condition.

DEWEY

Is located at Newhouse on the Pittsburgh, Lisbon & Western R. R., and is owned by the Elkton Mining Co. H. V. Sanor is superintendent, and Robert Bycroft is mine boss. This is a drift opening into the No. 6 vein of coal which is here about thirty-four inches in thickness. It is worked on the single entry system and a furnace is used as a mode of ventilation. Twenty-five miners and three day hands are employed. This mine has been kept in a fair condition throughout the entire year.

CENTRAL

This mine was abandoned the fore part of the year.

CARD AND PROSSER NO. 4

Is located at Lisbon on the Erie Ry., and is owned by Card & Prosser. Thomas Prosser is superintendent and David Lewis is mine boss. This is a drift opening into the No. 6 vein of coal which is here two feet and three inches in thickness. It is worked on the single entry system and has fan ventilation. About twenty-five miners and three day hands are employed. This mine has encountered sand rock faults and at present is not very encouraging for the company.

PINE HILL

Is located at Teegarden on the Erie Ry., and is owned by Card & Prosser. Thomas Prosser is superintendent, and Wm. R. Lewis is mine boss. This is a shaft opening into the No. 3 vein of coal which at this point is three and one-half feet in thickness. Fifty miners and nine day hands are employed at this mine. This mine is worked on the single entry system and is ventilated by a furnace. This mine has been kept in good condition throughout the year. I investigated the cause of the death of Wm. Foy which was caused by a shot blowing through the rib between the room he worked and the one in which the shot was fired. Mr. Foy was ordered to work in a room on the left side of the entry. After starting in the room he was placed in he left it and went into the room on the right side of the entry without the mine boss' consent, in which he met his untimely death.

SALEM

Is located on the Salem Railway near Washingtonville and is owned by the Salem Coal Co. Wm. Dunn has entire supervision. It is a drift opening to the No. 3 vein of coal and is about three and one-half feet in thickness at this point. It is worked on the single entry system and is ventilated by a fan. Ninety miners and fourteen day men are employed. Two sets of scales were tested here during the year and found them correct each time. This mine has been kept in fair condition throughout the year.

CHERRY VALLEY NO. 3

Is located at Washingtonville on the Erie Railway and is owned by the Cherry Valley Iron Works. T. R. Lewis is superintendent and Daniel McGrath is the mine boss. This is a slope opening to the No. 3 vein of coal which is about three and one-half feet in thickness at this point. It is worked on the single entry system and is ventilated by a fan. Ninety miners and twenty day men are employed. The ventilation of this mine has been very poor and not up to the standard as required

by law, for the reason that they have not enough steam power to run the fan faster. At the close of the year the company agreed to erect two large boilers which would supply the mine with plenty of air.

FAIRFIELD NO. 2

Is located at New Waterford on the Pittsburgh, Ft. Wayne & Chicago R. R., and is owned by the Fairfield Coal Co. Thomas D. Sutherin is the superintendent and Wm. Shasteen is the mine boss. This is a drift opening to the No. 6 vein of coal and is about three feet four inches in thickness. This mine is worked on the single entry system and is ventilated by a fan. One hundred miners and twenty day men are employed. I tested the scales and found them correct. Also investigated the death of Sylvester Meek who was employed as an engineer. He was killed by the falling of a large water tank which was erected about ten or twelve feet above the ground. This tank was used for the purpose of holding water with which to clean and fill the boiler. Mr. Meek had filled the tank with a view of cleaning out the boiler and in order to fill the tank after it had been cleaned out he climbed up on the tank to see about the water when it fell over on him catching him between the tank and engine house crushing his legs so that amputation was necessary. He died from the loss of so much blood and the shock to his system. This mine has been kept in good condition.

CAREON HILL NO. 4

Is located at East Palestine on the Pittsburgh, Ft. Wayne and Chicago R. R., and is owned by the East Palestine Coal Co. This is a drift opening into the No. 6 vein of coal which is here about four feet in thickness. W. S. Lewis is superintendent, and Wm. Morris is mine boss. It is worked on the single entry system and has furnace ventilation. At the end of the year this mine was almost worked out.

PROSPECT HILL

Is located at East Palestine on the Pittsburgh, Ft. Wayne & Chicago R. R., and is owned by the Prospect Hill Coal Co. W. S. Lewis is superintendent, and W. B. Lewis is mine boss. This is a slope opening into the No. 6 vein of coal and is about three and one-half feet in thickness. It is worked on the single entry system and is ventilated by means of a fan. This mine suspended operations about the first of September and remained idle until the close of the year.

MINES IN COLUMBIANA COUNTY EMPLOYING LESS THAN TEN MEN.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	Number of Men.	P. O. Address.
State Line	Slope	State Line Coal Co.	9	East Palestine.
Wheat Hill	Drift	Wheat Hill Coal Co.	9	" "
Manila	"	A. W. Johnson	8	" "
Eureka	"	Joe Hisey	2	New Waterford.
Mollenkoph	"	J. Mollenkopf	2	Unity.
Ranch	"	O. S. Ranch	2	"
Hall Ridge	"	Ludwig Frenzer	5	New Waterford.
Lincoln	Shaft	Hugh Laughlin	9	East Palestine.
Pine Hollow	Drift	James Ashman	9	Salem.
First National	"	Wm. Stone	5	"
Cement	"	Ohio Cement Co.	6	Lisbon.
Sheen	Shaft	Crooks & Brotter	3	Salem.
Andilusia	"	Irvin Melinger	6	"
Howells	Drift	Allison & Bashaw	9	"

MAHONING COUNTY.

STOFFERS

Is located at Washingtonville on the Erie Railway and is owned by the Washingtonville Mining Co. Frank Stoffer is superintendent and David Stoffer is mine boss. This is a shaft opening into the No. 3 vein of coal which is about three feet in thickness at this point. It is worked on the single entry system and has fan ventilation. About thirty-five miners and seven day hands are employed. Mine was kept in fair condition. I tested the scales and found them correct.

FAIR VIEW

Is located at Washingtonville on the Erie Railway and is owned by the Fair View Coal & Mining Co. J. C. Weikart has entire charge. It is a drift opening into the No. 4 seam of coal and is about two feet in thickness at this place. This mine is worked on the single entry system and is ventilated by means of a furnace. About eleven miners and two day men are employed. With the exception of fire damp which this mine is annoyed with on certain days the mine was kept in fair condition.

MCKINLEY

Is located at Beloit on the Pittsburgh, Ft. Wayne & Chicago R. R., and is owned by C. C. Cook who is also superintendent. M. A. Miller is mine boss. This is a shaft opening into the No. 3 seam of coal and is about

three feet and a half in thickness at this point. It is worked on the single entry system and is ventilated by means of exhaust steam. Twenty-five miners and ten day men are employed at this mine. I tested the scales and found them correct. The mine was kept in fair condition.

BELOIT

Is located at Beloit on the Pittsburgh, Ft. Wayne & Chicago R. R., and is owned by the Youngstown Paving Brick Co. Lavoier Kinder is the superintendent and J. C. Evans is the mine boss. This is a shaft opening into the No. 3 seam of coal which is about three feet in thickness at this point. Twelve miners and twelve day hands are employed. The mine was kept in a fair condition throughout the year.

RYDER

Is located near Youngstown on a branch of the Erie Railway and is owned by the Chestnut Ridge Coal Co. Thomas Tyrell has entire supervision. This is a shaft opening one hundred and twenty-five feet in depth into the No. 1 seam of coal and is from two four feet in thickness. This is a new mine and they were about ready at the close of the year to ship coal.

MINES IN MAHONING COUNTY EMPLOYING LESS THAN TEN MEN.

Name or Mine.	Kind of Opening.	Name of Owner or Operator.	Number of Men.	P. O. Address.
Garfield	Drift	J. C. Devine	4	Alliance.
Seers	"	David Coy	5	Salem.
Pow	"	Godward & Sons.	7	"
Auld	"	Robert Auld	4	"
Beach Ridge	"	Joseph Shier	3	"
Greenamyre	Shaft	John Howells	8	"

PORTAGE COUNTY.

HUTSON NO. 1

Is located near Davis Roads, and was abandoned and worked out during the fore part of the year.

HUTSON NO. 2

Is located near Davis Roads on the Alliance & Northern Railway, and is owned by the Hudson Coal Co. T. J. Williams is superintendent and Roger Lewis is mine boss. This is a shaft opening into the No. 1 seam of

coal or the Palmyra Block and is two feet and three feet in thickness at this point. It is worked on the single entry system and a fan is used as a mode of ventilation. Fifty miners and fourteen day men are employed. The mine was kept in fair condition.

HUTSON NO. 4

Is located near Deerfield on the Alliance and Northern Railway and is also owned and managed by the same parties as No. 1 and No. 2 Mine with the exception of J. P. Williams who is mine boss. This is a shaft opening into the same seam of coal and at this point is of a very excellent quality and of a uniform thickness of three and one-half feet. Seventy-five miners and twenty day hands find employment. I was called to this mine to investigate the death of John Griffith who was injured at the face of his entry by a fall of slate injuring him so badly that he died after suffering fifty days. The mine was kept in a fair condition.

HUTSON NO. 5

Is located near Keans Crossing on the Alliance and Northern R. R., and is owned and operated by the same parties as the No. 1 and 2 mines. It is a shaft opening into the famous Palmyra Block Coal which at this point is from three to four feet in thickness. It is worked on the single entry system and is ventilated by a fan. Sixty-five miners and fourteen day hands are employed. This mine was kept in a fair condition throughout the year. I tested the scales and found them in a very bad condition. I gave orders to have them put in good condition which the company consented to do at once.

SUMMIT COUNTY.

FOX LAKE

Is located near Clinton on the C. A. & C. R. R., and is owned by the Fox Lake Coal Co. G. F. Huber has entire charge. This is a shaft mine one hundred and forty-five feet in depth into the Massillon No. 1 seam of coal which at this point is four feet in thickness. One hundred miners and twenty day hands are employed. This mine is worked on the double entry system and is ventilated by means of a fan. A new shaft has been sunk which serves as a second opening and escapement way.

TURKEY FOOT

Is located near Manchester and ship their produce over the C. A. & C. R. R. It is owned by the Brewster Coal Co. John S. Davis has entire supervision. This is a shaft opening into the Massillon seam of coal which is here from three to four feet in thickness and employs one hundred miners and twenty-seven day hands. The mine has been kept in a fair condition. It is worked on the double entry system and is ventilated by means of a fan and exhaust steam.

MEDINA COUNTY.

AKRON NO. 4

Is located near Wadsworth on the Erie Railway and is owned by the Akron Coal Co. V. Gerstenschlagen is the superintendent and Thomas James is mine boss. This is a slope mine into the Massillon seam of coal which is here from four to five feet in thickness. The mine has a very bad roof composed of soapstone. The ventilation during the fore part of the year was in very poor condition on account of the airway caving in which was caused by the character of the roof as stated above. Twenty-five miners and six day men are employed at this mine.

CARDS NO. 3

Is located near Wadsworth on the Erie Railway and is owned by the Card Coal Co. O. V. Dibble is superintendent and Ruben Brader is mine boss. This is a slope mine into the Massillon seam of coal and is about four feet in thickness at this point. It is worked on the double entry system and is ventilated by means of exhaust steam. Fifty miners and twelve day men are employed. The ventilation was not as good as the department would have desired it. A new air shaft was sunk and after it was finished it relieved the dip working to a certain extent. The drainage of this mine was not at all satisfactory to the department.

KLONDIKE

Is located near Wadsworth on the Erie Railway and is owned by the Hutchinson Coal Co. John Hutchinson has entire charge. This is a slope, opening into the Massillon seam of coal and is from three to four feet in thickness at this point. It is worked on the double entry system and is ventilated by exhaust steam. About twenty miners and four day men are employed. The mine was kept in a fair condition.

SILVER CREEK

Is located near Wadsworth on the Erie Railway and is owned by the Silver Creek Coal Co. Richard Allen is superintendent, and Peter Schwalbach is mine boss. This is a slope opening into the Massillon seam of coal. Twenty miners and three day men are employed. At the close of the year the prospects are that the mine will soon be worked out and abandoned.

WAGNERS

Is located near Wadsworth on the Erie Railway and is owned by J. J. Wagner who is superintendent and Daniel Golden is mine boss. This is a new slope opened into the Massillon seam of coal and is about four feet in thickness. Fifty miners and ten day men are engaged at work in

this mine. A very large horseback was encountered in this mine cut out the coal causing a great deal of inconvenience to the co as well as additional expense. This mine was opened up near abandoned Wadsworth Mine which they tapped and pumped water and have driven to the old air shaft belonging to the old mine gives them a good supply of air as well as a second opening.

TRUMBULL COUNTY.

KEEL RIDGE

Is located near Brookfield on the L. S. & M. S. R. R., and is owned by the Witch Hazel Coal Co. David Jacobs has entire charge. The drift opening into the No. 1 vein or Block Coal and is about three feet thickness at this point. Twenty-five miners and five day men are employed. A new air shaft was sunk at or near the face of the mine to give them good ventilation. It is worked on the double entry system and exhaust steam is used as a mode of ventilation.

COAL MINES.

LIST OF MINES EMPLOYING MORE THAN TEN MEN.

ATHENS COUNTY.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	P. O. Address.
Carbondale No. 2.....	Drift	Carbondale Coal Co.....	Carbondale.
" No. 3.....	"	"	"
Phoenix No. 2.....	Shaft	Phoenix Coal Co.....	Chicago.
Jacksonville No. 4.....	"	W. P. Rend & Co.....	"
Briar Ridge No. 6.....	"	"	"
No. 10.....	"	Sunday Creek Coal Co.....	Columbus.
No. 10 X.....	Drift	"	"
No. 16.....	Shaft	Courtright Coal Co.....	"
Bell Run No. 55.....	Drift	Maple Hill Coal Co.....	Nelsonville.
" No. 2.....	"	"	"
Briar Hill.....	"	Jonas Patton.....	"
No. 3.....	"	J. M. Stillwell.....	"
No. 29.....	"	Wilson Coal Co.....	"
West Floodwood.....	"	Silcot Coal Co.....	"
No. 24.....	Shaft	Northern Fuel Co.....	Jacksonville.
Broadwell.....	Drift	O. Brent Guard.....	Marietta.
Federal Valley No. 1..	"	G. W. Haybron.....	Broadwell.
" No. 2..	"	Marietta Run Coal & C. Co..	New York.
Sedalia.....	Slope	Sedalia Coal Co.....	Glouster.
Jumbo.....	Shaft	North Star Coal Co.....	Columbus.
Minker Run.....	Drift	Hocking Valley Coal Co....	"
Black Diamond.....	"	Black Diamond C. & C. Co..	"
Daleton No. 1.....	Shaft	Luhrig Coal Co.....	Cincinnati.
" No. 2.....	"	"	"
Halbert.....	Drift	Shafer Coal Co.....	Glen Ebon.
Bessie.....	Shaft	Buckeye Coal Co.....	Nelsonville.
Wells.....	Drift	A. H. Wells.....	"
Elm Rock.....	"	Price & Patton.....	"
Brooks Hill.....	"	Canny & Co.....	Mineral.
Big Run.....	Slope	C. A. Nice.....	Big Run.
Greendale New.....	"	Greendale Furnace Co.....	Columbus.
Rara Avis.....	Shaft	Demster Coal Co.....	Chauncy.
Somers.....	Drift	Somers Coal Co.....	Columbus.
Bachtel No. 5.....	"	New Pittsburg Coal Co.....	"

MINES EMPLOYING LESS THAN TEN MEN.

ATHENS COUNTY.

Name of Owner or Operator.	P. O. Address.
Barber Bros.	Nelsonville.
J. F. Schuler.....	Sharpsburg.
M. Patch	Jacksonville.
George Love	"
Clark Wilson	Nelsonville.
Ed Holland	"
J. C. Martin	Broadwell.
East Clayton Clay Manufacturing Co.....	Nelsonville.
Louis Wetzel	Buchtel.

MINES EMPLOYING MORE THAN TEN MEN.

BELMONT COUNTY.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	P. O. Address.
Wheeling Creek No. 1.	Drift	Pittsb'g & Wheeling Coal Co.	Bridgeport.
" " No. 2.	"	" " "	"
Crescent No. 1.....	"	" " "	"
Ætna Standard	"	Ætna Standard I. & S. Co...	"
McConaughy	"	James Conaughy	"
Nail Mill	"	Bellaire Steel Co.....	Bellaire.
Bernard	"	Nail Mill Co.....	"
Schicks	"	James Turnbull & Co.....	"
Belmont No. 1.....	"	Jacob Heatherington	"
" No. 2.....	"	The Rose & Morgan Co.....	"
Pittsburg	Slope	Pittsburg Block C. Co.....	Pittsburg.
Morgan	Drift	G. E. Morgan.....	Bellaire.
Maple Hill	"	Maple Hill Coal Co.....	Barton.
Boggs No. 2.....	"	E. N. Boggs.....	"
Taggarts	"	Joseph Schindler	"
Flushing	"	Flushing Coal Co.....	Elyria.
Black Diamond	"	C. Troll's Sons.....	St. Clairsville.
Laughlin	"	Laughlin Nail Co.....	Wheeling, W. Va.
Captina	Shaft	Captina Coal Co.....	Armstrongs Mills.
Kidds No. 2 or Stan'd.	Drift	Alex Neff	Neffs.
Franklin	"	Owen Meehan	Stewartsville.
Quaker City	Slope	Cochran & Co.....	Quaker City.
Walnut Hill No. 2....	Drift	O. & P. Coal Co.....	Cleveland.
Gaylord	"	Gaylord Mining Co.....	Martins Ferry.
Glen	Slope	Glen Coal Co.....	Glenco.
O. & W. Va.....	"	O. & W. Va. Coal Co.....	St. Clairsville.
Wegee	Slope	Wegee Coal Co.....	Ambler.
Echo	Drift	W. D. Noble.....	Neffs.
Kennon No. 2.....	"	Kennon Coal Co.....	Cleveland.

MINES EMPLOYING LESS THAN TEN MEN.

BELMONT COUNTY.

Name of Owner or Operator.	P. O. Address.
David Boston	Bridgeport.
Richard Davey	Barnesville.
John Klee	Klee.
John Musgrave	Bellaire.
Davis & Archer	"
E. T. Morris	Martin's Ferry.
Israel Pelkey	Bellaire.
Koehnline & Son	Bridgeport.
J. E. Schnegg	Powhatan.
Henry Lewis	Martin's Ferry.
Lewis Helling	Martin's Ferry.
Michael Burns	"
George Keiger	"
Samuel Fielding	Powhatan.
Isaiah Owens	"
Charles Rosser	Bellaire.
Lewis Pelkey	"
W. S. Glasgow	Klee.
John Reline	St. Clairsville.
Rinker Bros.	"
Heller Bros.	W. Wheeling.
Charles Held	Don.
W. C. Sedgwick	Martin's Ferry.
D. K. Allen	"
J. W. Goldsmith	Barton.
Henry Dichl	Don.
John R. Crozier	Bellaire.
Robert Applegarth	Don.
Robert Clark	Stewartsville.
George Neff	Neffs.
D. R. Humphrey	Flushing.
Able Walker	"
A. Conrow	"
J. Carlton Howell	"
Elias McConaughy	Bridgeport.

MINES EMPLOYING MORE THAN TEN MEN.

CARROLL COUNTY.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	P. O. Address.
Sherrods ville No. 3...	Drift	Sherrods ville Coal Co.	Massillon.
Scotts No. 3.	"	Mardy Coal & Mining Co.	Tabor.
Elder	"	J. D. Owen Mining Co.	Canton.
Linden No. 1.	"	Davis Railway Coal Co.	"
" No. 2 New.	"	" " " " " " " " " " " "	"
" No. 5.	"	" " " " " " " " " " " "	"
Malvern	"	Malvern Fire Clay Co.	Malvern.
Sherrods ville No. 5	"	J. H. Somers.	Cleveland.
New	"	Betz Coal Co.	Akron.
Starkey No. 1.	Slope	" " " " " " " " " " " "	"
" No. 2.	"	" " " " " " " " " " " "	"

MINES EMPLOYING LESS THAN TEN MEN.

CARROLL COUNTY.

Name of Owner or Operator.	P. O. Address.
Myers & Hartford	Malvern.
The Beatty Fire Clay Co.	Magnolia.
Snowden & Moore	Carrollton.
John E. Ebersole	"
Sylvester Scott	Algonquin.
Samuel Sharp	Sherrods ville.
Abraham Richardson	"
J. S. Warner	N. Hagerstown.
Conrad Pearch	Sherrods ville.
E. P. Moody	Carrollton.
G. C. McCreary	Leesville.
Amor Preston	Palermo.
E. B. George	Harlem Springs.
France & Brandon	"
Ezra Thompson	"
Oliver Gatshall	"
James A. Lee	"

MINES EMPLOYING MORE THAN TEN MEN.

COLUMBIANA COUNTY.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	P. O. Address.
Farmers	Drift	Brown Coal Co.	Salineville.
Anderson	"	Heatherington Bros	"
Heatherington	"	"	"
Slope	Slope	O. & P. Coal Co.	Cleveland.
Hayes	Drift	James Strabley	Salineville.
Cedar Hill	"	"	"
New Shaft	Shaft	Big Vein Coal Co.	Cleveland.
Fosters	Drift	Morrison Foster	Shields, Pa.
Prospect Hill	Slope	Prospect Hill Coal Co.	East Palestine.
Pleasant Valley	Drift	Holly Coal Co.	" "
Wheat Hill	"	Wheat Hill Coal Co.	" "
Cherry Valley No. 3... No. 4...	Slope	Cherry Valley Iron Works... "	Leetonia.
First National	Drift	J. Post	Salem.
Quaker Valley	"	Sterling Coal Co.	Rogers.
Cement	"	Ohio Cement Co.	Lisbon.
Carbon Hill No. 4....	Drift	East Palestine Coal Co.	East Palesti...
Saratoga No. 4.....	"	Card & Prosser Coal Co.	Lisbon.
Folts	Shaft	"	"
Salem	Drift	Salem Coal Co.	Salem.
Pine Hollow	"	James Ashman	"
Campbells	"	East Palestine Coal Co.	East Palestine.
Fairfield No. 2.....	"	Fairfield Mining Co.	New Waterford.
Oak Hill	"	Oak Hill Coal Co.	Cleveland.
Dewey	"	Cherry Valley Iron Works..	Lisbon.

LIST OF MEN EMPLOYING LESS THAN TEN MEN.

COLUMBIANA COUNTY.

Name of Owner or Operator.	P. O. Address.
George Swearingen	Wellsville.
Buckeye Brick Co	"
Alan Tweed	Unity.
David J. Davis	E. Palestine.
Columbiana Coal Co	"
Irving Mellinger	Salem.
Thomas Crooks	"
Charles March	Calcutta.
Kirk & Vasey	Salineville.
C. W. Barrett	Calcutta.
Allison & Bashaw	Salem.
J. H. & H. T. Turner	Salineville.
Ludwig Frenger	N. Waterford.
Jonathan Mollenkoph	Unity.
E. J. Renkenberger	E. Fairfield.
E. C. King	N. Ch'mb'rsb'rg.
G. McQuiston	E. Fairfield.
George Baker	Washingtonville.
Wm. McDonald	Leetonia.
J. H. Smith	Linton.
L. A. Greenawalt	Leetonia.
Wm. Ward	E. Palestine.
I. C. Shepard	Salem.
Elizabeth Neiheisel	Leetonia.
Thos. J. Myers	"
E. F. Callahan	Beloit.
The Standard Pottery Co.	Salineville.
J. D. Smith	Washingtonville.
F. M. Simkins	Elkton.
Joseph Whittaker	Inland.
Andrew Roley	Wellsville.
Philip March	Lisbon.
O. S. Hill	"

MINES EMPLOYING MORE THAN TEN MEN.

COSHOCKTON COUNTY.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	P. O. Address.
Morgan Run No. 3....	Drift	Morgan Run Coal Co.....	Cleveland.
Franklin No. 1.....	"	Columbus Coal & Mining Co.	Franklin Station.
" No. 2.....	"	" " " " " " " "	" "
Conesville No. 2.....	"	David Davis	Conesville.
" No. 3 New.	"	" " " " " " " "	" "
" No. 4.....	"	" " " " " " " "	" "
" No. 5.....	"	" " " " " " " "	" "
Conley No. 2.....	"	Bowers Coal Co.....	Coshockton.
Hay No. 1.....	"	Joseph H. Robson.....	"
" No. 2.....	"	Coshockton Coal Co.....	"
Cassingham	"	" " " " " " " "	"
Hudson No. 1.....	"	Hudson Coal Co.....	"
" No. 2.....	"	" " " " " " " "	"
Wade No. 1.....	"	Wade Coal Co.....	Cleveland.
" No. 2.....	"	" " " " " " " "	"
Flint Hill	"	Henry Lear	Coshockton.

MINES EMPLOYING LESS THAN TEN MEN.

COSHOCKTON COUNTY.

Name of Owner or Operator.	P. O. Address.
C. Tumblin	Wills Creek.
J. E. Aronhalt	Coshockton.
Williams & Son	"
Dan Hudson	"
Charles West	"
Pinkney Cannel Coal Co	Cleveland.
Ed West	Cashockton.
Thomas Lear	"
Benjamin C. Williams	W. Lafayette.
James H. Gillen	Roscoe.

MINES EMPLOYING MORE THAN TEN MEN.

GALLIA COUNTY.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	P. O. Address.
Carl No. 1.....	Drift	E. L. Carl.....	Carlton.
" No. 2.....	"	"	"

MINES EMPLOYING LESS THAN TEN MEN.

GALLIA COUNTY.

Name of Owner or Operator.	P. O. Address.
W. Small	Bladen.
M. D. Wilkinson	"
Halley Bros	"
Raccoon Coal and Fuel Co	Gallipolis.
D. D. Morgan	Thurman.
Thomas E. Evans	"

MINES EMPLOYING MORE THAN TEN MEN.

GUERNSEY COUNTY.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	P. O. Address.
Champion	Shaft	Wills Creek Coal Co.....	Cleveland.
Nicholson	Drift	Ohio Coal Co.....	Cambridge.
Guernsey	"	Ohio & N. Western Coal & Mining Co	"
Hartford	Shaft	J. W. Ellsworth & Co.....	Cleveland.
Trail Run	"	"	"
Pioneer	Slope	Pioneer Coal Co.....	"
Forsythe	"	Forsythe Coal Co.....	Danford.
Cisco	Shaft	Opperman Coal Co.....	Cambridge.
Robbins	"	Morris & Guild Co.....	"
Imperial	Drift	Hamilton Mining Co.....	"
Klondike	"	Loomis-Moss Coal Co.....	Lore City.
C. C. C.....	"	O. & N. W. C. & M. Co.....	Cambridge.
Walhounding	Shaft	Wills Creek Coal Co.....	"
Old Orchard	"	Old Orchard Coal Co.....	Cleveland.

MINES EMPLOYING LESS THAN TEN MEN.

GUERNSEY COUNTY.

Name of Owner or Operator.	P. O. Address.
W. Nicholson	Cambridge.
James Burris	Craig.
Jones & Taylor	"
Robert Burris	"
John S. Holbrook	Byesville.
M. A. Griest	Quaker City.
F. C. Barton	"
Samuel Sayers	"
C. C. Cheney	Post Boy.
Perry Hayes	Quaker City.
J. T. Morrison	Cambridge.
F. Taylor	Craig.
J. R. Bate	Quaker City.
James Likes	"
Hugh Keena	"
E. H. Webster	"

MINES EMPLOYING MORE THAN TEN MEN.

HARRISON COUNTY.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	P. O. Address.
Messenger	Drift	McKean & Kerr.....	Bowerstown.

MINES EMPLOYING LESS THAN TEN MEN.

HARRISON COUNTY.

Name of Owner or Operator.	P. O. Address.
John Elwood	Tappan.
Robert Penman	"
G. W. Czatt	"
S. C. Clemens	Cadiz.
R. R. Cochran	"
John Farr	"
J. H. Patterson	"
J. W. Rife	"
Robert Long	"
J. H. Campbell	"
Wm. Hedges	"
Geo. Thompson	"
W. H. Martin	"
J. C. Jamison	"
Wm. Sheets	"
A. Tipton	Hattonia.
R. F. Ramsey	"
E. C. Rogers	Moraville.
John Keasey	"
David M. Nichols	Bowerston.
C. O. Heida	"
F. W. Weyandt	"
A. J. Evans	Freeport.
D. F. Hess	"
Wm. Tennett	"
Joseph Fouts	Tippecanoe.
Shook & Ross	"
Frank Stevens	"
C. H. Decker	"
Henry Copeland	Folks Station.
Wesley Mattern	"
Wm. Hanna	"
J. B. Cope	Hopevale.
Jacob Snider heirs	Greenough.
Addison Leas	Means.
Geo. Aukerman	Science Hill.
J. P. & Nancy Liggett	Hopedale.
Thos. Arbaugh	Jewett.
Elmer Hines	"
O. C. Hines	"
John Busby	"
Morris Hoobler	Germano.
Jesse Cecil	Stillwater.
C. B. Best	Germano.
S. Ramsey	Hopedale.
Wm. Birney	"
A. A. Canon	New Athens.
R. M. Love	"
James Culbertson	"
W. R. Crimm, Sr	"
M. A. Grimes	"
Jas. W. Kerr	Cadiz.
David Allison heirs	Folks Station.
H. H. Snyder	Hopedale.
Thos. Young	"
Jas. D. Mitchell	Warfel.
Lafayette Galbraith	Germano.

MINES EMPLOYING MORE THAN TEN MEN.

HOCKING COUNTY.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	P. O. Address.
New Pittsburg No. 1..	Drift	New Pittsburg Coal Co.....	Columbus.
" " No. 6..	"	" " "	"
" " No. 2..	"	" " "	"
New Pittsburg No. 3 or Consul	"	" " "	"
Sand Run No. 1.....	"	Buckeye Coal & Railway Co..	"
" " New	"	" " "	"
Morris No. 2.....	"	" " "	"
" No. 3.....	"	" " "	"
Lost Run	"	" " "	"
No. 29	Slope	Greendale Coal Mining Co...	"
Black Diamond	Drift	Haydenville M. & M. Co...	Haydenville.
Coalgate	"	Somers Coal Co.....	Columbus.
Snake Hollow	"	C. L. Poston & Co.....	Nelsonville.
No. 15	"	Jacoby Coal Co.....	Sand Run.
Beattie Bros	Slope	Beattie Bros. Coal Co.....	Nelsonville.

MINES EMPLOYING LESS THAN TEN MEN.

HOCKING COUNTY.

Name of Owner or Operator.	P. O. Address.
J. M. Lama.....	Nelsonville.
Washington Coakley	"
Wm. Evans	Carbon Hill.
Cohagen & Achauer	Haydenville.

MINES EMPLOYING LESS THAN TEN MEN.

HOLMES COUNTY.

Name of Owner or Operator.	P. O. Address.
D. M. Bilderbach.....	Millersburgh.
J. W. Craft	"
J. B. Carrolin	"
John Chevellard	"
E. B. Skelley	"
G. C. Quillin	Killbuck.
Adolph Ackeret	Millersburgh.
Wm. Gindlesberger	"
John Horn	"
H. G. Mast	Benton.
Redett & Sons	Fredericksburg.

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MINES EMPLOYING MORE THAN TEN MEN.

JACKSON COUNTY.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	P. O. Address.
Superior No. 1.....	Shaft	Superior Coal Co.....	Wellston.
" No. 2.....	"	" ".....	"
" No. 3.....	"	" ".....	"
" No. 4.....	"	" ".....	"
" No. 5.....	Drift	" ".....	"
" No. 6.....	Slope	" ".....	"
Chapman.....	Drift	Chapman Coal Co.....	Jackson.
Grace.....	Shaft	" ".....	"
Springfield.....	Drift	" ".....	"
Wellston No. 3.....	Shaft	Wellston Coal Co.....	Wellston.
Fluhart No. 1.....	"	Fluhart Coal Co.....	"
" No. 2.....	"	" ".....	"
" No. 3.....	"	" ".....	"
Hurd Shaft.....	"	Hurd Coal Co.....	Jackson.
Hurd Slope.....	Slope	" ".....	"
Acorn Slope.....	"	Jones Coal Co.....	"
Jones No. 2.....	"	" ".....	"
Price.....	Drift	Gosline & Barbour.....	Toledo.
No. 3.....	Slope	Northern Coal Co.....	Jackson.
Northern.....	Shaft	Jones & Morgan.....	"
Eclipse.....	Drift	Eclipse Coal Co.....	"
Coalton No. 3.....	"	Coalton Coal Co.....	Coalton.
Ohio or Indiana.....	Slope	Ohio Coal Co.....	Jackson.
Emma.....	Shaft	Emma Coal Co.....	"
" New.....	"	" ".....	"
" No. 3.....	Drift	Jackson Hill Coal Co.....	"
Standard.....	Shaft	Standard Coal Co.....	"
Ada No. 2.....	"	Ada Coal Co.....	"
Globe No. 3.....	"	Globe Iron Co.....	"
Comet.....	"	Comet Coal Co.....	Wellston.
Eliza.....	"	Eliza Coal Co.....	"
Milton No. 1.....	"	Milton Coal Co.....	"
" No. 2.....	"	" ".....	"
" No. 3.....	"	" ".....	"
Buckeye No. 2.....	Drift	Buckeye Coal Co.....	Coalton.
Wainwright.....	Shaft	Wainwright Coal Co.....	Wellston.
Central.....	Slope	Central Mining Co.....	Jackson.
Hipple.....	"	Hipple Coal Co.....	Coalton.
Poling No. 2.....	Drift	Poling Coal Co.....	Dayton.
Alma.....	Shaft	Alma Coal Co.....	Glen Roy.
Victor No. 1.....	Drift	Victor Coal Co.....	Coalton.
Iron Valley No. 1.....	"	Iron Valley Coal Co.....	Jackson.
Garfield New.....	"	Garfield Coal Co.....	Coalton.
Sells.....	"	Sells Bros.....	"
Tom Corwin No. 1.....	Shaft	Tom Corwin Coal Co.....	Dayton.
" No. 2.....	"	Machine Coal Co.....	"
Jones Coal Co.....	Drift	Jones Coal Co.....	Oak Hill.
Oak Hill.....	"	Oak Hill F. B. Co.....	"
Oak Hill North Hill..	"	" ".....	"
Monroe.....	"	Briggs Coal Co.....	Esther.
Davis of Oak Hill.....	"	Thomas Davis Coal Co.....	Oak Hill.
Tom Rhodes.....	"	Coalton Coal Co.....	Coalton.
Star No. 4.....	"	Star Furnace Co.....	Jackson.

MINES EMPLOYING LESS THAN TEN MEN.

JACKSON COUNTY.

Name of Owner or Operator.	P. O. Address.
Giggins Coal Co	Coalton.
Ohio Fire Brick Co	Oak Hill.
ones Coal Co	"
Gallia Lime and Coal Co	Gallia Furnace.
ard Coal Co	Oak Hill.
nterprise Coal Co	Jackson.
ohn A. Thompson	"
oylan & Hamm	Chapman.
ats Nest Coal Co	Glen Roy.
Villiam Peake	Coalton.
urnfee & Bradshaw	"
Villiam Law	Jackson.
J. Eisnagle	"
W. Law	"
Herbert Trago	"
Peter Boylan	Coalton.
J. W. Faulkner	Leach.
Benjamin Byers	"
Klondike Coal Co	Jackson.
Life Hutchison	Coalton.
J. D. Thomas	Oak Hill.
John A. Davis	"
J. F. Houser	Chapman.
Clare, Duduit & Co.	Remple.
Ætna Coal Co	Jackson.
John Law	"
Jno. W. Simpson	"
W. C. Chambers	"
John S. Evans	Thurman.
Keystone Coal Co	Chapman.
Walker & Yates	Coalton.

MINES EMPLOYING MORE THAN TEN MEN.

JEFFERSON COUNTY.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	P. O. Address.
Dillon No. 2.....	Drift	W. L. E. & Pittsburg Coal Co.	Dillonvale.
Long Run No. 1.....	"	" " "	"
" No. 2.....	"	" " "	"
High Shaft	Shaft	Steubenville C. & M. Co.....	Steubenville.
Forest City	Drift	Forest City Clay Co.....	Toronto.
Brilliant	Shaft	Brilliant Iron & Steel Co....	Brilliant.
Oak Grove	Drift	Elmer E. Hicks.....	Bergholz.
Big Vein	"	Wm. Banfield	Irondale.
Bustard	Shaft	Jefferson Coal Co.....	Steubenville.
Calumet	Drift	Calumet Fire Clay Co.....	Calumet.
Diamond No. 2.....	"	W. E. Smith.....	Wellsville.
McFadyen	"	McFadyen Coal Co.....	Latrobe, Pa.
New Slope	Slope	Elmer E. Hicks.....	Bergholz.
Kelley No. 2.....	Drift	Kelley Coal Co.....	Portland Station.
Eagle	"	Kirk, Sheckler & Co.....	Bergholz.
Great Western	"	Great Western Coal Co.....	Toronto.
Wilson	"	Henry Wilson	Steubenville.

MINES EMPLOYING LESS THAN TEN MEN.

JEFFERSON COUNTY.

Name of Owner or Operator.	P. O. Address.
John Nicholson & Son	Dillonvale.
W. A. Taylor & Son	Bergholz.
Adolph Pritschaw	Irondale.
Joseph Van Kirk	Steubenville.
J. D. Tweed & Son	"
B. F. Owens	"
Ohio Valley Fire Clay Co	Toronto.
Toronto Fire Clay Manufacturing Co	"
Empire Fire Clay Co	Empire.
Excelsior Sewer Pipe Works	Calumet.
Stratton Bros	Empire.
Minor Fire Brick Co	"
R. S. Hill	Steubenville.
Freeman Fire Clay Co	Freeman.
A. C. Permar	Steubenville.
John Menton	Wintersville.
John Householder	Irondale.
Lodge & Curfman	Steubenville.
Bates Bros	"
D. O. Findley	Costonia.
J. F. Ball	Calumet.
Samuel Carman	Unionport.
Mrs. H. M. Ralston	Bloomingtondale.
John Trushel	Unionport.
Joseph Walters	Bloomingtondale.
F. C. Hicks	Fair Play.
Riverside Iron Works	Wheeling, W. Va.
Henry Cox	Smithfield.
A. G. Wolfe	"
John W. Hicks	"
Wm. Selman	"
Frank Snyder	Mt. Pleasant.
Joseph Cooper	Richmond.
J. C. Riley	"
James McBane	Irondale.

MINES EMPLOYING MORE THAN TEN MEN.

LAWRENCE COUNTY.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	P. O. Address.
New Castle	Drift	Means, Kyle & Co.	Hanging Rock.
Kelley	"	Kelley Nail & Iron Co.	Ironton.
Belfont	"	Belfont Iron Works Co.	"
Lawrence Mill	"	H. Pirrung & Son.	Vesuvius.
Halls	"	J. F. Hall Co.	Campbell.
Eagle	"	Henry Pirrung & Son.	Vesuvius.
Halley	Drift	Halley & Wells.	Pedro.
Nancy or Bartles.	"	Mrs. Lindsay Kelley.	Ironton.

MINES EMPLOYING LESS THAN TEN MEN.

LAWRENCE COUNTY.

Name of Owner or Operator.	P. O. Address.
Bester & Scherer	Ironton.
B. F. Lynd	"
E. B. Willard	Steece.
John Arthur & Son	Ironton.
James A. Richey	"
P. J. Carey	Coal Grove.
W. H. Breeding	Ironton.
Charles Kinstler	"
Thomas Anson, Sr	"
John Peters	Culbertson.
Abbott Bros	Coal Grove.
John G. Lane	Ironton.
C. L. Steed	Forrestdale.
Ben Ryan	Coal Grove.
Haskell Fire Brick Co	Ashland, Ky.
Mrs. Oscar Ellison	Macomb, Ill.
W. M. Ice	Labell.
Squire Johnson	Miller.
David Hughes	Culbertson.

MINES EMPLOYING MORE THAN TEN MEN.

MAHONING COUNTY.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	P. O. Address.
Beloit	Shaft	Youngstown Block Coal & Clay Co	Youngstown.
Stouffer	"	Washingtonville Mining Co.:	Washingtonville.
Fairview	Drift	Fairview Coal & Mining Co.	"
McKinley	Shaft	Ohio Brick & Coal Co.	Beloit.
Crescent	Slope	M. T. Evans.	Youngstown.
Ryder	Shaft	Chestnut Ridge Coal Co.	"

MINES EMPLOYING LESS THAN TEN MEN.

MAHONING COUNTY.

Name of Owner or Operator.	P. O. Address.
Devine	Alliance.
Lowells	Salem.
rd & Sons	"
Shriver	"
Dunn	"
Auld	"
Paulin	Poland.
Little	"
ald Bros	North Lima.
d & Wilderson	E. Lewiston.
Leshner	"
l Fry	"
Bros	Poland.
oal Co	North Lima.
F. J. Mentzer	"
& Hemmenway	Beloit.
Roose	Alliance.
Urmson	Beloit.
Holibaugh	North Lima.
Hunter & Son	Youngstown.
Ruhlman	Poland.
n Paulin	"
& Little	North Lima.
Clemson	Garfield.
& Carrier	Beloit.
elly	Poland.
hepard	Salem.
ord Fire Clay Co	Greenford.
& McElvey	Kirk.
Krumm	Perkins.
Bros	Ohlstown.
Beardsley	Canfield.
Huxsaw	"

MINES EMPLOYING MORE THAN TEN MEN.

MEDINA COUNTY.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	P. O. Address.
ope No. 3.....	Slope	Card Coal Co.....	Cleveland.
No. 4.....	"	Akron Coal Co.....	Akron.
e	"	Hutchinson Coal Co.....	Wadsworth.
Creek	"	Silver Creek Coal Co.....	"
.....	"	Whelan Coal Co.....	"
s	"	J. J. Wagner.....	Akron.

MINES EMPLOYING LESS THAN TEN MEN.

MEDINA COUNTY.

Name of Owner or Operator.	P. O. Address.
Cunningham Coal Co	Wadsworth.
Jonathan Harrison	"
D. P. Davis	Western Star
John G. Birkbeck & Sons	Wadsworth.

MINES EMPLOYING MORE THAN TEN MEN.

MEIGS COUNTY.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	P. O. Address.
Peacock	Drift	Peacock Coal Co.....	Pomeroy.
Coal Ridge	"	Coal Ridge Salt Co.....	"
Charter Oak	"	Charter Oak Coal Co.....	"
Syracuse Shaft	Shaft	Syracuse Coal & Salt Co....	Syracuse.
" Slope	Slope	" "	"
Minersville	Drift	D. S. Lewis.....	Pomeroy.
Rolling Mill	"	Martin Ebersbach	"
King	"	Nash & Spray.....	Middleport.
Silver Run No. 2....	"	Wm. Russell	"
Bear	"	Russell-Bear Mining Co....	Pomeroy.
Glendale	"	Kanawha Salt Co.....	Middleport.
Rolling Mill No. 2....	"	Martin Ebersbach	"
Buckeye Salt Co.....	"	Buckeye Salt Co.....	Pomeroy.

MINES EMPLOYING LESS THAN TEN MEN.

MEIGS COUNTY.

Name of Owner or Operator.	P. O. Address.
William Fick	Middleport.
Kauff Bros	"
B. Burton	"
Powell heirs	"
John Williams	Minersville.
Offer & Sons	Pomeroy.
S. D. Hogue	Rutland.
W. H. Woodward	"
Thompson Bros	Middleport.
John Rupe	Rutland.
J. Powers	"
Ferry Smith, Jr	Bradbury.
N. Bryne	Rutland.
W. J. Lanning	"
Wm. Karr	Minersville.
Eli Roush & Sons	"
George Baer & Son	"
Gottlieb Bentz	Pomeroy.
J. A. Daugherty	Middleport.
James M. Roush	Pomeroy.
John Hitchens	Minersville.
O. L. Bradford	Pomeroy.
J. W. Natross	Middleport.

MINES EMPLOYING MORE THAN TEN MEN.

MORGAN COUNTY.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	P. O. Address.
Rose	Drift	Carding Coal Co.	Rose Farm.
Black Diamond	Slope	Rose Valley Coal Co.	"

MINES EMPLOYING LESS THAN TEN MEN.

MONROE COUNTY.

Name of Owner or Operator.	P. O. Address.
J. W. Bruce	Aitch.
Wm. Steele	Ozark.
George Coats	Woodsfield.
S. R. Carlton	Jerusalem.
V. Gates	Woodsfield.

MINES EMPLOYING MORE THAN TEN MEN

MUSKINGUM COUNTY.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	P. O. Address.
Princess	Drift	Perry Smith	Zanesville.
East Hill	"	A. D. Morrison	Stovertown.
Chestnut Valley	"	Michael Fisher	Zanesville.
Garrett	"	Joseph Garrett	Philo.
Blue Rock	Slope	Blue Rock Coal Co.	Cedar Run.
Diamond No. 2.	Drift	C. W. Joslin & Co.	"
Werner No. 3.	Shaft	W. A. Werner	Zanesville.
Weller	Drift	W. H. Weller	"
Lehew	"	George M. Lehew	"
Harpers 3 Foot.	"	Eben Harper	"
Cannelville	"	McNally Coal Co.	Dillon.
Granger	"	Siler Coal Co.	McConnelsville.
Maynard	"	R. B. Mauk	Cannelville.
Eagle	"	R. G. Thompson	White Cottage.

MINES EMPLOYING LESS THAN TEN MEN.

MUSKINGUM COUNTY.

Name of Owner or Operator.	P. O. Address.
Benjamin Stoneburner	Roseville.
John G. Baughman	"
Alva Rider	"
Wigton Bros	"
Wm. Isles	Dillon.
Davis Coal Co	Zanesville.
James Knight	Fazeysburg.
Bagent & Rose	"
Henry Norman	"
Zed Lindell	"
Lockhard & Denman	"
John Harper	"
Eli Gourley	"
Wm. Dixon	Zanesville.
S. E. Alexander	"
Noah F. Swank	"
G. W. Besser	"
Bridwell & Barton	"
John Detenbeck	"
C. W. Fisher	"
O. W. Price	S. Zanesville.
H. L. Culp	Zanesville.
Buckeye Press Brick Co	"
Greiner Bros	"
Spence & Allen	"
John W. Andrews	"

MINES EMPLOYING LESS THAN TEN MEN — Continued.

MUSKINGUM COUNTY — Continued.

Name of Owner or Operator.	P. O. Address.
Emery	Zanesville.
1 Miles	"
s & Fowler	"
c Potts	"
Lutz	"
Foutch	"
Temple, Sr	"
1 Purcell	"
Smith	Ellis.
Melvin	Wortley Station.
Morgan	Zanesville.
e Harper	"
s L. Schultz	"
German	"
McNulty	"
1 Stiner	Ellis.
1 Fletcher	Zanesville.
McCormick	Ellis.
Combs	Zanesville.
Niebel	"
Blaney	Dillon.
Amore	Adams Mills.
E. Henke	Zanesville.
son Snyder	Dresden.
e Layton	"
Egbert	"
t Tumblin	Zanesville.
George	Hopewell.
Dick	Coaldale.
.. Campbell	Hopewell.
s Hock	Philo.
Morrison	Hopewell.
E. Dick	"
Billman	Dresden.
.. Williamson	Dillon.
1 Griffen	Dresden.
1 Stuller	"
nnell & Cox	Dillon.
Butler	Dresden.
Severance	Zanesville.
Kinney	Blue Rock.
1 Jamison	Dresden.
Cullins	Fazeysburg.
eyer & Son	Norwich.
Johnson	"
Walker	Otsego.
as Bell, Jr	"
Buker	"
Hamilton	"
Johnson	Norwich.
Bros	Coaldale.
Dickinson	Ellis.
1 Bridwell	Zanesville.
Barton	"
Greiner	"
Mullen	"
Hopkins	"
G. Swope	"

MINES EMPLOYING LESS THAN TEN MEN—Concluded.

MUSKINGUM COUNTY—Concluded.

Name of Owner or Operator.	P. O. Address.
Samuel McGee	Ellis.
Frank Workman	Otsego.
James Hamilton	"
G. F. Riney	"
C. C. Horner	Frazeysburg.
W. F. Trimbell	Otsego.
Daniel Hock	Philo.
Wm. Cornell	Tarsus.
John Hagenhouse	Zanesville.
M. T. Gant	"
John German	"
W. S. Wilkins	"
C. W. James	White Cottage.
Fountain & Rambo	"
D. W. Stotts	Dresben.
Joseph Wigton	Roseville.
Fultonham Brick and Drain Tile Co	Axlin.
Ralph Spencer	Dresden.
Charles N. Bounds	Frazeysburg.
G. W. Brown, Jr	Roseville.
George Powells	Fallsburg.

MINES EMPLOYING MORE THAN TEN MEN.

NOBLE COUNTY.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	P. O. Address.
Glenwood	Shaft	Glenwood Coal Co.....	Cleveland.

MINES EMPLOYING LESS THAN TEN MEN.

NOBLE COUNTY.

Name of Owner or Operator.	P. O. Address.
Eberly & King	Everly.
William McClintock	Summerfield.
Isaac M. Tucker	McLeary.
Henry Robinson	Stafford.
Andrew Poling	Perryopolis.
John Daniels	Flag.
Cooley Orr	Berne.
Willis Leisure	"
H. D. Miller	Flag.
Howard Anderson	McLeary.
N. M. Meek	Summerfield.
T. P. Love	Flag.
Fletcher Markey	Stafford.
D. O. Young	Summerfield.
D. R. Curtis	Flag.
W. B. Yonally	"
D. N. Baker	Hoskinsville.
J. M. Pickingpaugh	Sharon.
Eli Stewart	Hoskinsville.
Uriah Cleary	Berne.
Crawford & Bowen	Summerfield.
John J. Smith	Berne.
John A. Franklin	Whigville.
James Sparling	"
Philip Ashley	Quaker City.
Elijah Somers	"
S. J. McConnell	Mt. Ephriam.
Willey Bros	"
J. W. Young	Sarahsville.
Wm. McWilliams	"
W. M. McLaughlin	"
J. E. Young	"
F. A. Pettay	"
Theodore Boyd	Ashton.
Jacob Shott	Berne.
James Donnelly	Whigville.
Haney Bros	Cumberland.
Thomas Paisley	"
H. C. Hunter	"
I. R. Vance	Flag.
W. E. Day	"
Hugh Robinson	Stafford.
Henry Miller	Fulda.
C. I. McKee	Caldwell.
S. M. Archer	Enoch.
Okey & Ullman	Stafford.

MINES EMPLOYING MORE THAN TEN MEN.

PERRY COUNTY.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	P. O. Address.
No. 3	Drift	C. & H. C. & I. Co.....	Columbus.
No. 5	"	Troy Coal Co.....	New Straitsville.
No. 8	Shaft	Sunday Creek Coal Co.....	Columbus.
No. 21	Slope	"	"
Rends No. 3.....	Shaft	W. P. Rend Coal Co.....	Chicago, Ill.
Upson No. 1.....	Drift	Upson Coal Co.....	Shawnee.
Beach Grove No. 6....	Slope	H. J. Knoedler.....	Zanesville.
Green Hollow No. 1...	Drift	Wallace Coal Co.....	Redfield.
Clover Hill No. 2.....	"	W. D. Hamilton.....	Zanesville.
XX	"	Taylor, Williams & Jenkins.	Columbus.
Mingo	Shaft	Turney, Jones & Co.....	"
Congo No. 1.....	"	Congo Mining Co.....	"
" No. 2.....	"	"	"
Manley Or Furnace			
No. 2	Slope	E. W. Lewis & Co.....	Shawnee.
Shawnee Valley	Drift	Maynard Bros	Columbus.
Dicksonton	"	E. S. Hamilton.....	Dicksonton.
Hemlock or No. 20....	Slope	Hemlock Mining Co.....	Hemlock.
Black Diamond No. 1.	Drift	Black Diamond Coal Co....	New Straitsville.
" " No. 2.	"	"	"
Lower	"	Tague Bros. & Co.....	Crooksville.
Block or No. 2.....	"	"	McLuney.
New Crescent	"	New Crescent Mining Co...	Roseville.
No. 37	"	Essex Coal Co.....	New Straitsville.
Spring Valley	Slope	New Hamburg Coal Co....	New Hamburg.
No. 13	Drift	"	"
Co-operative	"	Martin & Roan.....	New Straitsville.
Keystone No. 2.....	"	Zanesville Coal Co.....	Zanesville.
Union	"	Ohio Coal & Cement Co....	Columbus.
No. 11 or 139.....	"	George Howe & Sons.....	New Straitsville.
Bristol No. 1.....	"	Bristol Coal Co.....	Newark.
" No. 2.....	"	"	"
Standard	"	Saltillo Coal Co.....	Columbus.
Lyonsdale New	"	M. Meenan	Lyonsdale.
Superior	"	Superior Coal Co.....	Glouster.
Simons	"	A. P. Simons.....	Redfield.
No. 75	"	Stalter & James.....	New Straitsville.
Iron Point No. 1.....	"	Iron Point Low Vein C. Co..	Shawnee.
Briar Hill	Slope	J. G. Underwood.....	Rose Farm.
Fanny	Drift	Taylor, Williams & Jenkins.	Shawnee.
Peacock	Shaft	Roberts & Davis.....	Hemlock.
Chestnut Hill No. 2...	Drift	Coyle Coal Co.....	Redfield.
No. 18	Slope	William Job Coal Co.....	Rendville.
Dew	Drift	Leyshon Coal Co.....	Burr Oak.

MINES EMPLOYING LESS THAN TEN MEN.

PERRY COUNTY.

Name of Owner or Operator.	P. O. Address.
ose Gibbs	N. Straitsville.
Hughes & Co	"
illsmith	Corning.
ey Robinson	McLuney.
'ilson & Co	N. Straitsville.
& Irvin	N. Lexington.
ge Parker	"
ins, Long & Co	N. Straitsville.
ew, Cox & Co	"
Mining and Manufacturing Co	Shawnee.
Davis	N. Straitsville.
rt Coal Co	"
ge Howe	"
s O'Donnell	"
ich Bros	"
nder & Co	"
e & Thompson	"
ael C. Carney	N. Lexington.
y Smith	"
as Greene	Somerset.
Greene	"
Greene	"
ge Saunders	"
Flowers	"
Fink	"
Smith	"
ford & Gaver Bros	McCuneville.
ge Edley	N. Straitsville.
n & Sowers	Crooksville.
Yost	Somerset.
Corder	"
North	"
as Phillips	Shawnee.
Bell	Hancock.
McCormick	"
Brown	"
ie Dumalt	Junction City.
Bowman	Maxville.
ge Danison, Sr	"
Wilson	Crooksville.
/ Ross	"

MINES EMPLOYING MORE THAN TEN MEN.

PORTAGE COUNTY.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	P. O. Address.
Hutson No. 2.....	Shaft	Hutson Coal Co.....	Cleveland.
" No. 4.....	"	" "	"
" No. 5.....	"	" "	"

MINES EMPLOYING MORE THAN TEN MEN.

SCIOTO COUNTY.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	P. O. Address.
Block Ore	Drift	Means, Kyle & Co.....	Hanging Rock.

MINES EMPLOYING LESS THAN TEN MEN.

SCIOTO COUNTY.

Name of Owner or Operator.	P. O. Address.
John North	Gervias.
M. E. Skelton	New Boston.
Isaac Bennington	Lyra.
John Miller	"
Lem Cadot	"
John Gifford	"

MINES EMPLOYING MORE THAN TEN MEN.

STARK COUNTY.

of Mine.	Kind of Opening.	Name of Owner or Operator.	P. O. Address.
Spring No. 2..	Drift	Ridgeway, Burton & Co....	Massillon.
ook	Shaft	" " "	"
Massillon	"	" " "	"
Massillon No. 2.	"	" " "	"
.....	"	" " "	"
enville	"	Howells Mining Co.....	"
No. 3.....	"	Elm Run Coal Co.....	"
No. 4.....	"	" " "	"
.....	Drift	Louisville Brick & Tile Co..	Louisville.
No. 1.....	Shaft	Warwick Coal Co.....	Massillon.
No. 2.....	"	" " "	"
od Shaft	"	James Mullins	Wooster.
Slope	Slope	" " "	"
d Slope No. 4	"	" " "	"
.....	Shaft	" " "	"
er or No. 3..	"	" " "	"
Massillon No. 3.	"	West Massillon Coal Co....	Massillon.
Hill	Drift	L. E. Smith.....	Greentown.
e No. 2.....	"	Monongahela or Lake Erie C.	
.....	Co	Co	Cleveland.
.....	Shaft	Evan S. Davis.....	Alliance.
.....	Slope	Block Vein Coal Co.....	Canton.
Valley	Drift	Pleasant Valley Coal Co....	Alliance.
ght or Wood-	"	" " "	"
.....	Shaft	Massillon-Cleveland Coal Co.	Massillon.
.....	"	" " "	"
.....	"	E. G. Krause & Co.....	Cleveland.
.....	"	Central Coal Co.....	Massillon.
all	Drift	L. L. Sheatzley.....	"
haft	Shaft	Pocock Coal Co.....	"
Standard ...	Drift	Massillon Standard Coal Co.	Navarre.
toneware	"	Canton Stoneware Co.....	Canton.
prings	Shaft	Crystal Springs Coal Co....	Massillon.
.....	"	Drake Coal Co.....	Cleveland.
ookfield	"	Massillon Mining Co.....	Massillon.

MINES EMPLOYING LESS THAN TEN MEN.

TRUMBULL COUNTY.

Name of Owner or Operator.	P. O. Address.
T. H. Lunn	Sharon, Pa.
Davis Bros	Mineral Ridge.
Rees Edwards	Coalburg.
Wm. Cotton & Son	Brookfield.
George Moore & Son	"
Ed S. Jones	Coalburgh.

MINES EMPLOYING MORE THAN TEN MEN.

TUSCARAWAS COUNTY.

Name of Mine.	Kind of Opening.	Name of Owner or Operator.	P. O. Address.
Somerdale North	Drift	Somerdale Coal Co.	Somerdale.
" East	"	" "	"
" No. 2	"	" "	"
Goshen No. 2	"	Goshen Coal Co.	New Philadelphia.
Midvale No. 2	"	Midvale Goshen Mining Co. .	Massillon.
Wainwrights No. 4	Slope	" " "	"
" No. 5	"	" " "	"
Eagle Hill	Drift	Wm. R. Jones	Zoar Station.
South Side	"	C. E. Holden	Mineral Point.
Acme	"	G. J. Markley	"
Huffs Run	"	Ridgeway, Burton & Co. .	Massillon.
Trenton	"	H. J. Minnich	Tuscarawas.
Tunnel Slope	Slope	Tunnel Mining Co.	Mineral Point.
" No. 6	Drift	" "	"
Mason	"	J. A. Horn	Canal Dover.
Morey Ridge	"	C. J. Nungesser	Beidler.
Maple Grove	"	Schindler Bros	Tuscarawas.
New Castle	"	C. D. Grimes	New Philadelphia.
Buckhorn	"	Buckhorn Coal Co.	Newcomerstown.
Houk	"	Dover Coal Co.	Canal Dover.
Massillon-Peacock	"	E. Van Kirk	Mineral Point.
Twin City	"	Dennison Coal Co.	Dennison.
Lobby	"	Lobby Coal Co.	Mineral Point.
Rock Cut	"	Geo. J. Markley	"
Newport	"	Erhard Coal Co.	Massillon.
Swan	"	Swan Coal Co.	Canton.
Sugar Creek	"	Shanesville Coal Co.	Shanesville.
East Goshen No. 1	"	East Goshen Coal Co.	Cleveland.
" No. 2	"	" "	"
Gordon	"	Gordon Coal Co.	Massillon.

MINES EMPLOYING LESS THAN TEN MEN.

TUSCARAWAS COUNTY.

Name of Owner or Operator.	P. O. Address.
Diamond Fire Clay Co	Uhrichsville.
Dennison Rolling Mill Co	Dennison.
Mark Godward	Uhrichsville.
Benner Minnich	Tuscarawas.
Joseph Shilling	Canal Dover.
John Lantzer	"
American Fire Brick Co	Mineral Point.
Winfield Skeeles	Dennison.
Buckeye Fire Clay Co	Uhrichsville.
Uhrichsville Fire Clay Co	"
George W. Kail	Canal Dover.
Crown Fire Brick Co	"
Edward Lieser	Blake's Mills.
Joseph Boon	N. Philadelphia.
Thomas Steele	"
Tuscarawas R. R. Co	"
Seward English	"
C. E. Warner	Blake's Mills.
Crocker & Co	Uhrichsville.
David Dunlavy	"
C. R. Shipton	"
Advance Fire Clay Co	"
John B. Wilcoxen	"
Cyrus Kilpatrick	Tracy.
David Johnson	Barnhill.
Clover Hill Coal Co	Somerdale.
Peter B. Reeves	Canal Dover.
Robert Sewell	"
Wm. Krantz	"
Harvey Gibbs	"
Joseph T. Patton	"
J. E. Murray	"
Pennsylvania Iron & Coal Co	Black Band.
Howell Williams	Midvale.
Ernst Haneter	Strasburgh.
Fred Ransch	N. Philadelphia.
John Dunn	"
Edward Burtscher	"
John Campbell	"
W. W. Norris	Newcomerstown.
Laughead & Tufford	"
McClellan Wardell	Strasburg.
Jacob C. Baker	Bolivar.
Gustav Kienzle	"
Louis Limbaugh	N. Cumberland.
Joseph O. Scott	Uhrichsville.
B. L. Grimm	N. Philadelphia.

MINES EMPLOYING LESS THAN TEN MEN.

TRUMBULL COUNTY.

Name of Owner or Operator.	P. O. Address.
T. H. Lunn	
Davis Bros	
Rees Edwards	
Wm. Cotton & Son	
George Moore & Son	
Ed S. Jones	
Elko Coal Co.	Vinton Station.
Star Coal Co.	Hawks.
Ingham Coal Co.	Mineral.
John L. Lawler.	Minerton.
Hanging Rock Coal Co.	Chicago.
Vinton Co. Coal & Mining Co.	Dayton.
Hezekiah Heasley	Zaleski.
F. E. Mohr.	McArthur.

MINES EMPLOYING LESS THAN TEN MEN.

VINTON COUNTY.

Name of Owner or Operator.	P. O. Address.
Smith Bros	McArthur.
E. T. Winters	"
Gillman & Ward	"
Henry Robinet	"
John Blore	Radcliffe.
Hamden Furnace Co	Hamden Jcn.
Devault & Sons	Minerton.

MINES EMPLOYING LESS THAN TEN MEN.

WASHINGTON COUNTY.

Name of Owner or Operator.	P. O. Address.
Barker & Ross	Coal Run.
Hickman, Cowell & Co	"
Henry Ball	"
Ralph Dobbins	Lowell.

MINES EMPLOYING MORE THAN TEN MEN.

WAYNE COUNTY.

of Mine.	Kind of Opening.	Name of Owner or Operator.	P. O. Address.
Wayne No. 2.....	Slope	The Ohio Salt Co.....	Wadsworth.

MINES EMPLOYING LESS THAN TEN MEN.

WAYNE COUNTY.

Name of Owner or Operator.	P. O. Address.
Seiberling & Miller	Doylestown.
Wm. P. Ries	"
J. H. Morgan	Fredericksburg.

FIRE CLAY MINES.

Name of Owner or Operator.	P. O. Address.
ATHENS COUNTY.	
Nelsonville Sewer Pipe Co	Nelsonville.
East Clayton Clay Manufacturing Co	"
Athens Brick Co	Athens.
Wassall Fire Clay Co	Columbus.
BELMONT COUNTY.	
George O. Robison	Bellaire.
CARROLL COUNTY.	
Minerva Paving Brick Co	Minerva.
Canton and Malvern F. B. and P. Co.....	Canton.
Beatty Fire Clay Co	Magnolia.
Malvern Fire Clay Co	Malvern.
The Myers and Hartford Clay Co	"
Standard Pottery Co.....	Salineville.
COLUMBIANA COUNTY.	
Globe Pottery Co	E. Liverpool.
F. P. Wherry	"
Michael Murphy	"
Knowles, Taylor & Anderson	"
T. H. Silver	Wellsville.

FIRE CLAY MINES—Continued.

Name of Owner or Operator.	P. O. Address.
COLUMBIANA COUNTY—Concluded.	
Vulcan Clay Co	Vulcan.
John Lythe & Sons	Wellsville.
Buckeye Fire Brick Co	"
Excelsior Fire Clay Co	Lisbon.
Keystone Fire Clay Co	"
Charles Walters	Salem.
N. U. Walker's Clay Manufacturing Co	Walkers.
Ohio Vitrified Pipe Co	Lisbon.
Champion Fire Brick Co	Wellsville.
F. L. Heistand	Homeworth.
Quaker Valley Pottery Co	Rogers.
G. W. McGarvy	Wellsville.
Standard Pottery Co	Salineville.
H. A. Thompson & Co	"
Columbus Fire Clay Co	Cleveland.
HOCKING COUNTY.	
Haydensville Mining and Manufacturing Co	Haydensville.
Columbus Brick and Terra Cotta Co	Columbus.
Parley Phelps	Gore.
Logan Fire Clay Co	Logan.
Leroy Kemper	Gore.
Joe Barthlow	Logan.
HOLMES COUNTY.	
Millersburg Brick and Tile Co	Millersburgh.
David Miller	Mt. Hope.
JACKSON COUNTY.	
Oak Hill Fire Brick and Coal Co	Oak Hill.
Ætna Fire Brick Co	"
Jefferson Furnace Co	"
JEFFERSON COUNTY.	
Empire Fire Clay Co	Empire.
Minor Fire Clay Co	"
Stratton Bros	"
Freeman Fire Clay Co	Freeman Station.
Calumet Fire Clay Co	Calumet.
Ohio Valley Fire Clay Co	Toronto.
Great Western Fire Clay Co	"
John Francy Sons Co	"
Wm. Donner	Irondale.
Toronto Fire Clay Co	Steubenville.
J. F. Ball	Calumet.
Standard Brick Works	Wellsville.
LAWRENCE COUNTY.	
George Griffith	Ironton.
Means, Kyle & Co	Hanging Rock.
Peter Burke	Steece.

FIRE CLAY MINES—Continued.

MAHONING COUNTY.	
Youngstown Paving Brick Co	Beloit.
Greenford Fire Clay Co	Greenford.
E. C. Walters	Poland.
M. J. Dustman	North Benton.
MUSKINGUM COUNTY.	
Wm. Dilts	Roseville.
Pace Bros. & Co	"
Chauncey Ford	"
Guilbert Russell & Son	"
Oakland Press Brick Co	Zanesville.
S. Zanesville S. P. & B. Co	"
W. B. Lowry	Roseville.
S. M. Stump	Ellis.
Wm. Bunting	"
George Melhollin	Hopewell.
PERRY COUNTY.	
Buckeye Stoneware Co	Buckeye Cottage.
W. A. Bradshaw	"
Solomon Hightshoe	Somerset.
W. H. Brown	Crooksville.
Samuel McKeever	"
New Lexington Press Brick Co	N. Lexington.
Ohio Mining and Manufacturing Co	Shawnee.
Mike Gossman	Crooksville.
Noah Stoneburner	"
H. E. Stoneburner	"
G. W. Pyle	Moxahela.
The American Sand Co	Columbus.
Marion Allen	Roseville.
SCIOTO COUNTY.	
Scioto Star Fire Brick Works	Portsmouth.
Webster Fire Brick Co	S. Webster.
Scioto Fire Brick Co	Sciotoville.
Means, Kyle & Co	Hanging Rock.
W. E. Marsh	Eifort.
Kettler Bros	Lilly.
Crist Hassalman	"
STARK COUNTY.	
The Royal Brick Co	Canton.
Canton and Osnaburgh B. and T. Co	"
Imperial Shale Brick Co	"
Rev. J. H. Harrier	N. Industry.
Massillon Stone and F. B. Co	Massillon.
The H. B. Camp Co	Aultman.
Riley New House	Magnolia.
Canton Pottery Co	Canton.
J. B. Hoover	Alliance.
Louisville B. and T. Co	Louisville.
Empire Clay Co	"
The Wm. Paul Brick Co	Massillon.
Diamond Portland Cement Co	Middlebranch.
Champion Tile Works	Louisville.
Canton Sparta Brick Co	Canton.

FIRE CLAY MINES—Concluded.

Name of Owner or Operator.	P. O. Address.
SUMMIT COUNTY.	
The Whitmore Robinson Co	Akron.
Hill Sewer Pipe Co	"
Akron Sewer Pipe Co	"
Buckeye Sewer Pipe Co	"
The E. H. Merrill Co	"
A. J. Weeks	"
Myers & Hall	Mogadore.
W. J. Webb	"
Reuben Swinehart	Brittian.
I. Madlem	N. Springfield.
J. Stetter	"
Webb Clay Co	Akron.
Harry Thompson	Cuyahoga Falls.
J. C. Ewart & Co	Akron.
The Robinson Bros. & Co	"
TUSCARAWAS COUNTY.	
Diamond Fire Clay Co	Uhrichsville.
Uhrichsville Fire Clay Co	"
Buckeye Fire Clay Co	"
J. J. Mazurie	"
Advance Fire Clay Co	"
Crown F. C. Co	Canal Dover.
Dover Fire Brick Co	Strasburgh.
C. E. Holden	Mineral Point.
American Fire Brick Co	"
J. J. Cristner & Sons	Baltic.
C. H. Conway & Co	N. Philadelphia.
Navarre Stoneware Co	Navarre.
Paul Clay Co	Akron.
George J. Markley	Mineral Point.
TRUMBULL COUNTY.	
J. V. Rose	Sharon, Pa.
VINTON COUNTY.	
Jacob Earnhart	Hue.

IRON ORE.

Name of Owner or Operator.	P. O. Address.
LAWRENCE COUNTY.	
Hecla Iron and Mining Co	Hecla.
The Campbell Iron Co	Campbell.
McGugin & Co	Olive Furnace.
Lawrence Furnace Co	Culberson.
Vesuvius Charcoal Iron Co	Pedro.
Means, Kyle & Co	Hanging Rock.
Peter Burke	Steece.
Jno. F. Hall Coal Co	Campbell.
SCIOTO COUNTY.	
The Clare Iron Co	Bloom Switch.
Walker E. Marsh	Eifort.
Means, Kyle & Co	Hanging Rock.
VINTON COUNTY.	
Hamden Furnace Co	Hamden Junc.

LIMESTONE.

Name of Owner or Operator.	P. O. Address.
ADAMS COUNTY.	
John McNeilan	West Union.
R. J. Kincaid	"
H. T. Herdman	Locust Grove.
Joseph Hart	Emerald.
Thompson Edwards	Wilson.
L. S. Rice	Portsmouth.
J. H. Ellison	Manchester.
Samuel Hopkins	"
ALLEN COUNTY.	
H. S., Sanford	Lima.
B. J. Gantz	"
David Joseph	"
Tetter & Sons	"
Frank Roush	"
Edward Gray	"
J. W. Long	"
J. C. Marsh	Herring.
Watt Bros	"
Staley & Dickason	"
L. J. Siddall	Bluffton.
G. F. Greenwald	"
J. C. Steiner	"
Conrade Triplehorn	"
Mollett Bros	"
E. J. Ford & Bro	Scott's Crossing.
D. T. Jones & Co	Vendocia.
J. C. Ford	Delpnos.
Fisher & Haller	"
Allen Joseph	Lima.
Wm. Pugh	"

LIMESTONE—Continued.

Name of Owner or Operator.	P. O. Address.
BUTLER COUNTY.	
John Killfoyle	Hamilton.
D. M. Skelley	"
J. B. Scott	"
G. Kuentzle	"
Nelson Good	Trenton.
Frederick & Hughes	Woodsdale.
Jacob Nickel	Excello.
R. J. Livingston	Symmes' Cors.
W. H. McCurley	Ross.
Daniel Pabst	Hamilton.
CLARK COUNTY.	
Moores & Co	Cold Springs.
S. Casperis Stone Co	Columbus.
Ambrose Petticrew	Springfield.
Samuel S. Taylor	"
Mills Bros	"
Moores Lime Co	"
J. W. Jenkins	"
W. A. Rubsam	"
Daniel Baker	Enon.
CLERMONT COUNTY.	
W. Smith	Bethel.
M. McClave	Loveland.
S. McClave	"
J. D. Sorrel	"
Chas. Helmering	N. Richmond.
Henry Harlow	Marathan.
E. Hulick	Owensville.
CRAWFORD COUNTY.	
Frank Snavelly	Osceola.
Jos. Snavelly	"
Brokensword Stone Co.	Bucyrus.
A. J. Brown	Lykens.
Ben Zelner	"
Chas. Reiff	Spore.
CLINTON COUNTY.	
Mrs. L. A. Babb	Wilmington.
Isaiah F. Miars	"
M. H. Miars	"
Jasper Brown	"
Geo. H. Benlehr	"
J. W. Frazier	"
John Huff	"
Isaac Clark	New Vienna.
Wm. F. Oglesbee	Lumberton.
J. F. Reardon	Pt. Williams.
John Ballard	Wilmington.
S. P. Bulkey	Kingman.
Asa Starbuck	Wilmington.
R. M. Williams	New Vienna.
O. B. Troville	Midland.
John Foster	W. Woodville.
Lewis Brant	"

LIMESTONE—Continued.

Name of Owner or Operator.	P. O. Address.
DELAWARE COUNTY.	
F. L. Campbell	Delaware.
Thos. Owens	"
John L. Morton	"
H. Duyer Stone Co	Marion.
M. Meredith & Son	Radnor.
S. E. Merchant	Rathbone.
Geo. Duffy	"
Frank L. Parsons	Powell.
Hazelton Bros	Delaware.
John Warren	Warrenburgh.
DARKE COUNTY.	
J. B. Hirshey	Gettysburgh.
S. V. McCabe	Weaver's Sta.
Alonzo Matchett	Lewisburgh.
ERIE COUNTY.	
Chas. Schoeffle	Sandusky.
M. J. Callan	"
M. Wagner	"
Chas. Krueger	"
Kelley Island L. and T. Co	Cleveland.
Jerome Widmer	Sandusky.
Frank Liles	Sand Hill.
S. E. Livingood	"
FRANKLIN COUNTY.	
Jonas Wilcox	Columbus.
The Columbus Stone Co	"
The Casperis Stone Co	"
James F. Legg	Marble Cliff.
J. M. McNinch	Columbus.
Wm. Lamb	Dublin.
J. C. Thompson	"
James Rumsey	"
N. Scofield	Hilliards.
GREENE COUNTY.	
Mary J. Archer	Zimmerman.
The D. S. Irwin Co	Cedarville.
John B. Taylor	"
Boots, Bales & Conklin	New Jasper.
J. C. Toland	Jamestown.
Owen Stutsman	Yellow Springs.
Joseph Smith	Wilberforce.
HAMILTON COUNTY.	
Ludwig Grower	Cincinnati.
City Work House	"
Benjamin Cooney	"
John Goodman	"
Matthew Slatterly	"
Arthur W. Davis	"
F. E. Weihe	Carthage.

LIMESTONE—Continued.

Name of Owner or Operator.	P. O. Address.
HAMILTON COUNTY—Concluded	
W. Maschunyer	Pleasant Ridge.
Chas. M. Fields	Glendale.
Jacob Weber	Carthage.
Sisters of the Good Shepherd	"
Rucker Stone Co	Greenfield.
Grant Bros	Cincinnati.
John B. Clark	Sweet Wine.
G. C. Hutchinson	Silverton.
Dr. Krueger	Madisonville.
George Fox	College Hill.
Nicholas Ruebel	Cheviot.
Ernest Zaeske	"
W. R. Moore	Cincinnati.
C. S. Boone	Milford.
Ernes Howell	Cincinnati.
Henry Stagg & Son	"
HARDIN COUNTY.	
Jas. Treshell	Ada.
Ry. Stone & Ballast Co	Dunkirk.
D. R. McArthur & Co	Kenton.
Wable & Beiley	N. Baltimore.
Weott & Herzogg	Patterson.
Kraft Bros	Ada.
HIGHLAND COUNTY.	
Frederick Quarranburger	Greenfield.
David West	"
Rucker Stone Co	"
Daniel Sharp, Jr	Lynchburgh.
Michael Gorman	Hillsboro.
R. P. Pinkerton	Lynchburgh.
Houck Bros	Shackleton.
Jos. T. Hart	Emerald.
John Luft	Leesburgh.
Daniel Sharp, Sr	Lynchburgh.
Geo. Reed	Ft. Hill.
John Rosher & Son	Leesburgh.
Chas. Mulnix	Hillsboro.
Jonah Britton	Willitsville.
James Donahoo	Sore.
HOLMES COUNTY.	
L. G. Donald	Millersburgh.
John Schuler	"
John C. Duncan	"
HARRISON COUNTY.	
Foley Bros	Alton.
JACKSON COUNTY.	
John Irwin	Wellston.

LIMESTONE—Continued.

Name of Owner or Operator.	P. O. Address.
JEFFERSON COUNTY.	
D. Lawrence	Richmond.
HANCOCK COUNTY.	
J. W. Wells & Son	Findlay.
Mrs. E. Hershey	"
Isaac Hershey	"
Wm. Norris	"
John Essinger & Co	Arlington.
Jacob Heldman	Jenera.
David Huffman	Rawson.
Amos Runkle	"
Schoonover & Powell	Findlay.
Tarbox & McCall	"
H. E. Dickey	Carey.
Winemiller & Myers	Houcktown.
Launder Bros	Arlington.
LAWRENCE COUNTY.	
Hecla Iron and Mining Co	Ironton.
Means, Kyle & Co	Hanging Rock.
Lawrence Furnace Co	Culberson.
McGugin & Co	Olive Furnace.
Peter Burke	Steece.
LOGAN COUNTY.	
Bellefontaine Stone and Lime Co	Bellefontaine.
John F. Cantwell	"
H. M. Brown & Son	Belle Center.
John L. Stratton	W. Middleburgh.
Jacob Piatt	W. Liberty.
Gen. A. S. Piatt	"
H. D. Randel	"
D. B. Reprogle	Belle Center.
LUCAS COUNTY.	
Thos. Henehan	Toledo.
J. L. Pray & Son	White House.
Stephen Brogan	"
Geo. Zeller	Maumee.
MARION COUNTY.	
The John Evans Lime and Stone Quarry	Marion.
The Norris & Christian L. and S. Co	"
James G. Fairbank	"
Owen & Evans	Owens.
Fred Hinamon	Marion.

LIMESTONE—Continued.

Name of Owner or Operator.	P. O. Address.
MIAMI COUNTY.	
Maxwell Stone Co	Ludlow Falls.
F. M. Coppock	"
Jos. Kopp & Co	"
G. W. McCabe	Piqua.
D. C. Stalter & Co	"
The Ohio Marble Co	"
G. W. Butt	Covington.
D. L. Face	"
J. W. Ruhl	"
C. B. Fletcher	"
August Burch	"
Levi Falknor	"
Chas. Hoover	"
Clapp Bros	"
Oliver Nichodemus	N. Clayton.
S. McLaughlin	"
J. M. C. Dean	Brandt.
Rex Marble Dust Co	Rex.
Dave Circle	Ludlow Falls.
Chas. Jackson	Covington.
W. Youtsey	Troy.
The Tipp Building and Manufacturing Co	Tippecanoe City.
MONTGOMERY COUNTY.	
The Lewis & Talbot Stone Co	Dayton.
James Manuel	Centersville.
J. B. Stansel	"
D. P. Oram	Sulphur Grove.
Chas. W. Barr	Dayton.
N. E. Kimmel	"
J. Seybould	"
Jos. Julick	Trotwood.
H. B. Shoup	Sulphur Grove.
H. M. Evans	Englewood.
D. A. Menges	"
David Shaw	Union.
Wm. Martindale	"
Samuel Fortney	Germantown.
Chas. Shafor	Dayton.
Phillip Weaver	Farmesville.
Daniel Yost	Dayton.
A. J. Shaffer	Amity.
Henry Troutman	"
MUSKINGUM COUNTY.	
Phillip Mourin	Zanesville.
W. R. Bolin	Hopewell.
Cowden Bros	Dresden.
W. T. Dilts	Roseville.
Samuel Stump	Ellis.
MERCER COUNTY.	
Emil Wagner	Ft. Recovery.

LIMESTONE—Continued.

Name of Owner or Operator.	P. O. Address.
OTTAWA COUNTY.	
N. E. Greeg	Genoa.
Frank Holt	"
John Growey	"
The Toledo White Lime Co	Toledo.
Lilly Lime Co	Rocky Ridge.
The Clark Co	Clay Center.
Dr. Joseph Kingham	Rocky Ridge.
L. A. Beatty	
Kelley Island Lime and Transport Co	Cleveland.
Limestone Lime Co	Limestone.
Olemacher Lime Co	Sandusky.
James Duncan	Toledo.
PAULDING COUNTY.	
Reason Johnson	Junction.
John McDorman	Roselms.
J. B. Carey	Scott.
Dean Adams	Oakwood.
PICKAWAY COUNTY.	
Mrs. Belle Z. McCoy	Circleville.
PIKE COUNTY.	
G. W. Nace	Sinking Spring.
PERRY COUNTY.	
David Hardy	Maxville
PREBLE COUNTY.	
Jonathan Paxton & Son	College Corner.
E. A. Ridenour	"
O. M. Wright	"
R. M. Hayes	Fair Haven.
James Saylor	Eaton.
James A. Kautz & Co	"
I. J. Weaver	Lewisburgh.
F. J. Wilson	"
John A. Elliott	Eaton.
Nathan C. Sloan	Morning Sun.
John Wright	College Corner.
James White	Camden.
Peter Foutz	"
Chester Elliott	Fair Haven.
G. W. Mann	Morning Sun.
Mathew Hamilton	College Corner.
Richard Danily	New Paris.
John Bennett	West Elkton.
Adolph Law	Jacksonboro.
Fisher & Campbell	Eaton.
Brannon, Hawkins & Marshall	New Paris.
Noah Nill	W. Alexandria.

LIMESTONE — Continued.

Name of Owner or Operator.	P. O. Address.
PUTNAM COUNTY.	
John Diller	Pandora.
John Bridenbaugh	"
Henry Hilty	"
H. W. Sackett	Ottawa.
T. W. Thomas	Rimer.
J. J. Guffy	"
J. B. Schuerman	Ft. Jennings.
Laner & Yocklin	Ottoville.
Chas. Alspach	Delphos.
Samuel Myers	Cascade.
J. B. Harmon	Gilboa.
W. H. Harmon	Dorminton.
David P. Schumaker	Columbus Grove.
R. N. Krofft Bros	Ada.
SANDUSKY COUNTY.	
Gattron Bros	Fremont.
A. R. Corser	"
B. Saurr	"
Wm. Creech	Bellevue.
Dohn Limestone Co	Gibsonburgh.
Zorn, Hornung & Co	"
H. Rankamp	Toledo.
Nelson Johnson	Genoa.
SENECA COUNTY.	
E. H. France	Bloomville.
Koller & Geiger	"
D. L. Fisher & Son	"
Eureka White Lime Co	Kansas.
M. Weot	Tiffin.
Tiffin Lime, Building and Sandstone Co	"
L. Schouder	"
L. McCollum	"
J. L. Dozer	Fostoria.
Dougherty & Co	Toledo.
J. F. Harpster	Flat Rock.
Jacob Detwiler	Bloomville.
Wm. Armstrong	Republic.
John Baker	W. Lodi.
P. Dennis	Flat Rock.
S. A. Saul	Bloomville.
A. W. Luzader	Adrian.
SHELBY COUNTY.	
Wm. Eatherington & Sons	Sidney.
STARK COUNTY.	
Warstler Bros	Oral City.
C. L. Dine	Battleburgh.
I. B. Drukenbrod	Middlebranch.
James Clapsaddle	Marlboro.
Rev. J. H. Harrier	N. Industry.
Clayton Holl	New Berlin.
Diamond Portland Cement Co.	Middlebranch.
David Warstler	Oral City.
Walter Seifort	Paris.

LIMESTONE — Concluded.

Name of Owner or Operator.	P. O. Address.
SCIOTO COUNTY.	
Clare Iron Co	Bloom Switch.
Walker E. Marsh	Eifort.
M. Coe & Sons	Freestone.
UNION COUNTY.	
C. H. Seeley	Jerome.
VAN WERT COUNTY.	
B. F. Leslie	Convoy.
E. H. France	Bloomville.
Wm. D. Semple	Van Wert.
J. B. Carey	Scott.
Dr. L. E. Sadd	Middlepoint.
Ireland, Manship & Ridenour	"
Mrs. Alice Mann Glenn	Van Wert.
WOOD COUNTY.	
Dougherty & Co	Toledo.
The Lime City Co	"
N. B. Eddy & Co	Luckey.
Sugar Ridge Stone and Lime Co	Sugar Ridge.
Snowflake Lime Co	"
D. P. Lloyd & Co.	Fostoria.
J. B. Luckey	Stony Ridge.
Isaac Hufford	"
L. Strayer	Grand Rapids.
Del Gilbert	Bowling Green.
Geo. E. Mercer	"
H. P. Myer	Hammsburgh.
M. Daum & Son	Carey.
Patterson Bros	Ada.
WYANDOT COUNTY.	
A. W. Luzader	Adrian.

MINING LAWS
OF THE
STATE OF OHIO,
WITH
LATEST AMENDMENTS.

PUBLISHED BY :::::
ROBERT M. HASELTINE,
CHIEF INSPECTOR OF MINES.

Mining Laws of Ohio.

INSPECTOR OF MINES.

SEC. 290. For the purpose of facilitating an efficient and thorough inspection of mines in Ohio, and to provide an adequate inspecting force therefor, the governor shall appoint, by and with the consent of the senate, one chief inspector, who, with the approval of the governor, shall appoint five district inspectors of mines; the chief inspector shall hold his office for the term of four years, and the district inspectors shall hold their office for the term of three years from the date of their appointment, and until their successors are appointed and qualified; the first appointments hereunder shall be made within thirty days from the date when this act shall take effect; and in case of the resignation, removal or death of the chief inspector, or any district inspector, the vacancy shall be filled in the manner above provided for original appointments for the unexpired term only, of the position so made vacant. No person shall be appointed chief inspector of mines unless he is possessed of a competent knowledge of chemistry, the geology of Ohio, and mineralogy, in so far as those sciences relate to mining, and has a practical knowledge of mining engineering, and the different systems of working and ventilating mines, and the nature and properties of the noxious and poisonous gases of mines, particularly fire damp, and of the best means of preventing and removing the same; and no person shall be appointed district inspector of mines unless he be a practical miner of at least five years' experience, and a resident of the district for which he is appointed, for at least two years, and is possessed of a practical knowledge of the best mode of working and ventilating mines, of the means of detecting the presence of bad or foul air, noxious and poisonous gases, and of the best means of preventing and removing the same.

Appointment of chief and district inspectors; who eligible.

SEC. 290a. That authority be and is hereby given to appoint two additional district inspectors of mines; and they shall be appointed in the same manner and possess the same qualifications and receive the same compensation as the five district inspectors of mines authorized by said Sec. 290. The term of office of the two district inspectors of mines herein provided for shall be three years, and they shall take an oath and give bond, as provided in Sec. 291 of the Revised Statutes of Ohio, and shall be subject to the regulations and requirements of the district inspectors authorized in said Sec. 290, as provided in chapter nine of the Revised Statutes of Ohio. The chief inspector of mines shall assign said additional inspectors for service in districts to be

Additional district inspectors.

designated by him, and he is authorized to divide the state in seven districts, in each of which one of the district inspectors of mines shall reside.

Bond and
oath.

SEC. 291. Before entering upon the discharge of the duties of their respective offices, the chief inspector and district inspectors shall give bond to the state, the former in the sum of five thousand dollars, and the latter in the sum of two thousand dollars each, to be approved by the governor, conditioned for the faithful performance of their duties, respectively; said bonds, with an oath of office on each, and approval of the governor indorsed thereon, shall be forthwith deposited with the secretary of state; the inspectors, while in office, shall not act as agent, manager or mining engineer for any operator, or in any way be interested in operating any mine.

Their powers
and duties.

SEC. 292. The chief inspector and district inspectors shall give their whole time and attention to the duties of their offices, respectively; it shall be the duty of the district inspectors to examine all the mines in their respective districts as often as possible, to see that all the provisions and requirements of this chapter are strictly observed and carried out; they shall particularly examine the works and machinery belonging to any mine, examine into the state and condition of the mines as to ventilation, circulation and condition of air, drainage and general security; they shall make a record of all examinations of mines in their respective districts, showing the date when made, the condition in which the mines are found, the extent to which the laws relating to mines and mining are observed or violated, the progress made in the improvement and security of life and health sought to be secured by the provisions of this chapter, number of accidents, injuries received, or deaths in or about the mines, the number of mines in their respective districts, the number of persons employed in or about each mine, together with all such other facts and information of public interest concerning the condition of mines, development and progress of mining in their respective districts, as they may think useful and proper, which record shall, on or before the first Monday of every month, be filed in the office of the chief inspector, to be by him recorded, and so much thereof as may be of public interest, to be included in his annual report; in case of any controversy or disagreement between the district inspector and the owner and [or?] operator of any mine, or the persons working therein, or in case of conditions of emergencies requiring counsel, the district inspector may call on the chief inspector for such assistance and counsel as may be necessary; should the district inspector find any of the provisions of this chapter violated or not complied with, by any owner, lessee, or agent in charge of any mine, he shall immediately notify such owner, lessee, or agent in charge, of such neglect or violation, and unless the same is, within a reasonable time, rectified, and the provisions of this chapter fully complied with, he shall institute a prosecution under the provisions of section six

thousand eight hundred and seventy-one (6871) of the Revised Statutes. The inspectors shall exercise a sound discretion in the enforcement of the provisions of this act, and if in any respect (which is not provided against by, or may result from a rigid enforcement of any express provisions of this chapter), the inspector find any matter, thing or practice in or connected with any such mine, to be dangerous or defective, so as, in his opinion, to threaten or tend to the bodily injury of any person, the inspector may give notice in writing thereof to the owner, agent or manager of the mine, and shall state in such notice the particulars in which he considers such mine, or any part thereof, or any matter, thing or [or?] practice to be dangerous or defective, and require the same to be remedied. For the purpose of making the inspection and examinations provided for in this section, the chief inspector and the district inspectors shall have the right to enter any mine at all reasonable times, by night or by day, but in such manner as shall not unnecessarily obstruct the working of the mine; and the owner or agent of such mine is hereby required to furnish the means necessary for such entry and inspection; the inspection and examination herein provided for shall extend to fire clay, iron ore and other mines, as well as coal mines.

SEC. 293. The chief inspector shall designate the counties or portions thereof in the state which shall compose the different districts, and may at any time change the same, when in his judgment the best interests of the service may require, and shall issue such instructions, make such rules and regulations for the government of the district inspectors, not inconsistent with the powers and duties vested in them by law, as shall secure uniformity of action and proceedings throughout the different districts; and he may order one district inspector to the assistance of any other district inspector, or make temporary transfers of district inspectors, when, in his judgment, the efficiency or necessity of the service demands or permits, and he may, with the consent of the governor, remove any district inspector at pleasure; the district inspectors are hereby invested with all the powers and authority of county auditors, as sealers of weights and measures in the different counties of this state, and for any service performed as such sealers they shall receive the same compensation as now provided by section ten hundred and sixty-two (1062) of the Revised Statutes; but said inspector shall exercise said authority in connection with weights and measures only at mines in their respective districts; the chief inspector shall render such personal assistance to the district inspectors as they, from time to time, may require, and shall make such personal inspection of the mines as he may deem necessary, and his other duties will permit; he shall keep in his office and carefully preserve all maps, surveys and other reports and papers required by law to be filed with him, and so arrange and preserve the same as shall make them a permanent record of ready, convenient and connected reference; he shall compile and consolidate

District, how made and changed.

Rules for district inspectors.

Power of chief over district inspectors.

Their powers as sealers of weights and measures.

Special duties of chief inspector.

His reports.

Mining operators to make certain report to him.

Penalty for their failure to make such reports.

Matters to be included in report of chief inspector.

Maps, plans of mines, etc., shall be kept in offices.

Salaries.

the reports of district inspectors, and annually make report to the governor of all his proceedings, as well as those of the district inspectors, the condition and operation of the different mines of the state, and the number of mines and the number of persons employed in or about such mines, the amount of coal, iron ore, limestone, fire clay, or other mineral mined in the state; and for the purpose of enabling him to make such report, the owner, lessee or agent in charge of such mine, who is engaged in mining, and the owner, lessee or agent of any firm, company or corporation in charge of any fire clay, or iron ore mined [mine?] or any limestone, or quarry, or who is engaged in mining or producing any mineral whatsoever in this state, shall, on or before the 31st day of January in every year, send to the office of the chief inspector of mines, upon blanks furnished by him, a correct return specifying with respect to the year ending on the preceding 31st day of December, the quantity of coal, iron ore, fire clay, limestone, or other mineral product in such mine or quarry, and the number of persons ordinarily employed in or about such mine, or quarry, below and above ground, distinguishing the persons and labor below ground and above ground. Every owner, lessee or agent of a mine or quarry who fails to comply with this section, or makes any return which to his knowledge is false in any particular, shall be deemed guilty of an offense against this section, and shall be fined one hundred dollars, to be recovered at the suit of the chief inspector in the name of the state of Ohio; he shall also include in such report such facts relative to the mineral resources of the state and the development of the same, as shall, in his judgment, be of public interest; he shall enumerate all accidents, and the manner in which they occurred, in or about the mines, and give all such other information as he thinks useful and proper, and make such suggestions as he deems important, relative to mines and mining, and any other legislation that may be necessary on the subject for the better preservation of the life and health of those engaged in such industry.

SEC. 294. The chief inspector shall have an office in the state house, in which shall be carefully kept the maps and plans of all mines in the state, and all records, correspondence, papers, and apparatus and property pertaining to his duties, belonging to the state, and shall be handed over to his successor in office; the district inspectors shall keep their offices in such place in their respective districts as will be most central and convenient to the mining region of their respective districts, and shall keep and preserve in their offices all maps, plans, surveys, and other papers belonging to their offices, in such manner as shall be of easy access and convenient reference to persons entitled to examine them. The district inspectors shall receive an annual salary of twelve hundred dollars (\$1,200) per annum, and the chief inspector shall receive the same salary as is now provided for inspector of mines under

section twelve hundred and eighty-four of the Revised Statutes.

SEC. 295. There shall be provided for the inspectors weights and measures and all instruments and chemical tests necessary for the discharge of their respective duties under this chapter, which shall be paid for on the certificate of the chief inspector, from his contingent fund, and shall belong to the state.

Instruments, etc., to be furnished inspectors.

SEC. 295a. It shall be unlawful for any mine owner, lessee or operator of coal mines in this state, employing miners at bushel or ton rates, or other quantity, to pass the output of coal mined by said miners over any screen or other device which shall take any part from the value thereof, before the same shall have been weighed and duly credited to the employe sending the same to the surface, and accounted for at the legal rate of weights as fixed by laws of Ohio.

Unlawful to screen coal before weighing.

SEC. 295b. The provisions of this act shall also apply to the class of workers, engaged in mines wherein the mining is done by machinery, known as loaders; whenever the workmen are under contract to load by the bushel, ton or any quantity, the settlement of which is had by weight, the output shall be weighed in accordance with the provisions of this act.

Provisions apply to "loaders."

SEC. 295c. Any mine owner, lessee or operator of coal mines in this state, neglecting or refusing to comply with the conditions required to be performed by sections 295a and 295b, shall be deemed guilty of a misdemeanor, and upon conviction, be fined in any sum not exceeding six hundred (\$600) dollars, nor less than three hundred (\$300) dollars, at the discretion of the court.

Penalty.

SEC. 296. The owner or agent of any mine having an excavation of not less than fifteen thousand cubic yards, shall make, or cause to be made, an accurate map or plan of the working of such mine on a scale of not less than two hundred feet to the inch, showing the area mined or excavated, and the location and connection with such excavation of the mine of the lines of all adjoining lands, and the name or names of each owner or owners, so far as known, marked on each tract, and the owner or agent shall annually thereafter make, or cause to be made, an addition to said map, showing the progress and plan of the working of such mine during the previous year up to the date of survey; provided, that said additions shall be made semi-annually whenever the mine inspector deems it necessary and so directs. The map shall be kept at the office of such mine, and open to the inspection of the mine inspector, or his assistants, at all reasonable times, and at the request of the inspector the owner or agent shall file a correct copy of such map with said mine inspector at Columbus, and in case of refusal on the part of the owner or agent to make and file such map, the inspector is authorized and required hereby to cause such map or maps to be made in duplicate, at the expense of said owner or agent, the cost of which shall be recoverable against the

Owner of a mine shall furnish a map of his mine, etc.

Inspector to cause maps to be made.

Additions made semi-annually.

Cause maps to be made in duplicate.

owner or agent in the name of the state mine inspector ; and in case of refusal by said owner or agent to make, or cause such map and the additions thereto to be made, for sixty days after notice by the mine inspector, said agent or owner shall be liable to a fine of five dollars for each and every day until said map is made, which shall be collected in the name of the state of Ohio, at the suit of the state mine inspector, and the amount so recovered shall be paid into the township school fund of the township when collected. And when any mine is exhausted or abandoned, and before the pillars are drawn in any portion of the mine, the owner or agent thereof shall cause to be made a correct map of such mine, showing the area and working of the same to the day of abandoning, or of drawing pillars for the purpose of abandoning, and file such map within ninety days thereafter at the office of the county recorder in the county where such mine is located ; said map shall have attached thereto the sworn certificate of the mining engineer making the map, and of the mine boss in charge of the underground workings of said mine ; such map shall be properly labeled and filed by the recorder, and be preserved as a part of the records of the land on which such mines are located, and the recorder shall receive for said filing from said owner or agent a fee of fifty cents.

Maps of abandoned mines to be made.

Shall have attached sworn certificates.

Outlets required.

SEC. 297. It is unlawful for the owner or agent of any coal mine, worked by shaft, to employ or permit any person to work therein, unless there are, to every seam of coal worked in each mine, at least two separate outlets, separated by natural strata of not less than one hundred feet in breadth, by which shafts or outlets distinct means of ingress and egress are always available to the persons employed in the mine ; but it is not necessary for the two outlets to belong to the same mine if the persons employed therein have safe, ready and available means of ingress and egress by not less than two openings. This section shall not apply to opening a new mine while being worked for the purpose of making communication between said two outlets so long as not more than twenty persons are employed at any one time in such mine, neither shall it apply to any mine or part of a mine in which the second outlet has been rendered unavailable by reason of the final robbing of pillars previous to abandonment, so long as not more than twenty persons are employed therein at any one time. The cage or cages, and other means of egress shall at all times be available for the persons employed, where there is no second outlet. The escapement shafts shall be fitted with safe and available appliances, by which the persons employed in the mine may readily escape in case an accident occurs deranging the hoisting machinery at the main outlets, and such means or appliances for escape shall always be kept in a safe condition ; and in no case shall an air shaft, with a ventilating furnace at the bottom, be construed to be an escapement shaft, within the meaning

Not apply to new openings.

Does not apply unless more than 20 men are employed.

Cages fitted with safe appliances.

of this section: To all other coal mines, whether slopes or drifts, two such openings or outlets must be provided within twelve months after shipments of coal have commenced from such mine; and in case such outlets are not provided as herein stipulated it shall not be lawful for the agent or owner of such slope or drift to permit more than ten persons to work therein at any one time. In case a coal mine has but one shaft, slope or drift, for the ingress or egress of the men working therein, and the owner thereof does not own suitable surface ground for another opening, he may select and appropriate any adjoining land for that purpose, and may make an additional shaft or outlet under, through or upon any intervening land, or land adjoining, and shall be governed in his proceeding in appropriating such land by the provisions of law in force, providing for the appropriation of private property by corporations, and such appropriation may be made, whether he is a corporator or not; but no land shall be appropriated under the provisions of this chapter until the court is satisfied that suitable premises can not be obtained upon reasonable terms.

Slopes and drifts must be provided within twelve months.

When owner does not own suitable ground.

SEC. 298. The owner or agent of every coal mine, whether shaft, slope or drift, shall provide and maintain for every such mine an amount of ventilation of not less than 100 cubic feet, per minute, per person employed in such mine, which shall be circulated and distributed throughout the mine in such a manner as to dilute, render harmless and expel the poisonous and noxious gases from each and every working place in the mine, and no working place shall be driven more than sixty feet in advance of a breakthrough, or air-way; and all breakthroughs, or air-ways, except those last made near the working-faces of the mine, shall be closed up and made air-tight, by brattice, trap doors, or otherwise, so that the currents of air in circulation in the mine may sweep to the interior of the mine, where the persons employed in such mine are at work, and all mines governed by the statute shall be provided with artificial means of producing ventilation, such as forcing, or suction fans, exhaust steam, furnaces or other contrivances, of such capacity and power as to produce and maintain an abundant supply of air, and all mines generating fire-damp shall be kept free from standing gas, and every working place shall be carefully examined every morning with a safety lamp, by a competent person or persons, before any of the workmen are allowed to enter the mine. All underground entrances to any places not in actual course of working or extension shall be properly fenced across the whole width of such entrances so as to prevent persons from inadvertently entering the same.

Ventilation.

Shall not drive working place more than 60 feet in advance of breakthrough.

Working places examined every morning.

SEC. 299. The owner or agent of every coal mine operated by shaft, in all cases where the human voice can not be distinctly heard, shall forthwith provide and maintain a metal tube from the top to the bottom of such shaft, suitably calculated for the free passage of sound therein, so that conversation may be held between persons at the bot-

Safety apparatus and precautions.

Cover over-
head of cages.

tom and top of the shaft ; there shall also be provided an approved safety-catch, and a sufficient cover overhead, on all carriages used for lowering and hoisting persons, and in the top of every shaft an approved safety-gate, and an adequate brake shall be attached to every drum or machine used for lowering or raising persons in all shafts or slopes ; and there shall also be provided in every shaft a traveling or passage way from one side of a shaft bottom to the other, so that persons working therein may not have to pass under descending cages ; and all slopes or engine planes, used as traveling ways by persons in any mine, shall be made of sufficient width to permit persons to pass moving cars with safety ; but if found impracticable to make any slope or engine plane of sufficient width, then safety holes of ample dimensions, and not more than sixty feet apart, shall be made on one side of said slope or engine plane. Such safety holes shall always be kept free from obstructions, and the roof and sides shall be made secure. The boilers used for generating steam, and the buildings containing the boilers shall not be nearer than sixty feet to any shaft or slope, or to any building or inflammable structure connecting with or surrounding said shaft or slope ; but this section shall not apply to any shaft or slope until the work of development and shipment of coal has commenced.

Boilers not
nearer than 60
feet to any
shaft or slope.

Competent
engineers
must be em-
ployed, etc.

SEC. 300. No owner or agent of any coal mine operated by a shaft or slope shall place in charge of any engine used for lowering into or hoisting out of such mine persons employed therein, any but experienced, competent and sober engineers ; and no engineer in charge of such engine shall allow any person, except such as may be deputed for that purpose, by the owner or agent, to interfere with it or any part of the machinery, and no person shall interfere or in any way intimidate the engineer in the discharge of his duties ; and in no case shall more than ten men ride on any cage or car at one time, and no person shall ride upon a loaded cage or car in any shaft or slope.

Lighting and
ventilation.

Safety lamps
the property
of mine owner.

SEC. 301. All safety lamps used for examining coal mines, or which are used in any coal mine, shall be the property of the owner of the mine, and shall be under the charge of the agent thereof, and in all mines, whether they generate fire-damp or not, the doors use[d] in assisting or directing ventilation of the mine, shall be so hung or adjusted that they will shut of their own accord and cannot stand open ; and all main doors shall have an attendant, whose constant duty shall be to open them for transportation and travel, and prevent them from standing open longer than is necessary for persons or cars to pass through ; and the mining boss shall keep a careful watch over the ventilating apparatus and the air-way, and he shall measure the ventilation at least once a week, at the inlet and outlet, and also at or near the face of all the entries, and the measurements of air so made shall be noted on blanks, furnished by the chief inspector ; and on the first day of each month the mining boss of each mine shall sign one of such blanks.

Main doors
shall have an
attendant.

Mine boss
shall measure
the air once a
week.

Notice of ac-
cidents.

properly filled with the said actual measurements, and forward the same to the chief inspector, and any mining boss making false returns of such air measurements shall be deemed guilty of an offense against this section. Every person having charge of any mine, whenever loss of life occurs by accident, connected with the working of such mine, or by explosion, shall give notice thereof forthwith, by mail or otherwise, to the inspector of mines, and to the coroner of the county in which such mine is situated, and the coroner shall hold an inquest upon the body of the person or persons whose death has been caused, and inquire carefully into the cause thereof, and shall return a copy of the findings and all the testimony to the chief inspector. The owner, agent, or manager of every mine shall, within twenty-four hours next after any accident or explosion, whereby loss of life or personal injury may have been occasioned, send notice in writing to the chief inspector, and shall specify in such notice the character and cause of the accident, and the name or names of the persons killed and injured, with the extent and nature of the injuries sustained. When any personal injury, of which notice is required to be sent under this section, results in the death of the person injured, notice in writing shall be sent to the chief inspector within twenty-four hours after such death comes to the knowledge of the owner, agent or manager; and when loss of life occurs in any mine by explosion, or accident, the owner, agent, or manager of such mine, shall notify the chief inspector, or the district inspector forthwith, of the fact and it shall be the duty of the chief inspector to go himself, or require one of the district inspectors to go, at once to the mine in which said death occurred, and inquire into the cause of the same, and to make a written report, fully setting forth the condition of the part of the mine where such death occurred, and the cause which led to the same; which report shall be filed by the chief inspector in his office as a matter or [of?] record, and for future reference.

For any injury to persons or property, occasioned by any violation of this act, or any willful failure to comply with its provisions by any owner, agent or manager of any mine, a right of action shall accrue to the party injured, for any direct damage he may have sustained thereby; and, in any case of loss of life, by reason of such willful neglect or failure, aforesaid, a right of action shall accrue to the widow and lineal heirs of the person whose life shall be lost, for like recovery of damages for the injury they have sustained.

The owner, agent or manager of any mine shall also give notice to the chief inspector of mines in any or all of the following cases:

1. Where any change occurs in the name of any mine, or in the name of any owner, agent, or manager of any mine, or in the officers of any incorporated company which owns or operates a mine.

Shall give notice to the chief inspector and the coroner.

Coroner shall hold inquest.

Duty of inspectors.

Notice when loss of life occurs.

Penalty.

Right of action to party injured.

Other notices to be given chief inspector of mines.

2. Where any working is commenced for the purpose of opening a new shaft, slope or mine, to which this act applies.

3. Where any mine is abandoned or the working thereof discontinued.

4. Where the working of any mine is recommenced after any abandonment or discontinuance for a period exceeding three months.

5. Where the pillars of a mine are about to be removed or robbed.

6. Where a squeeze or crush, or any other cause or change may seem to affect the safety of persons employed in any mine, or where fire occurs, or a dangerous body of gas is found in any mine.

SEC. 302. No child under fifteen years of age shall be allowed to work in any mine, and in all cases of minors applying for work the agent of such mine shall see that the provisions of this section are not violated; he shall also keep a record of all minors employed by him, or by any person employed in said mine, giving the name, age, place of birth, parents' name and residence, with character of employment, and he shall demand from such minor proof that he has complied with the requirements of the school laws; and it shall be the duty of the mine inspector to inspect such record and to report to the chief inspector of mines the number of minors employed in or about such mines and to enforce the provisions of this section.

Action for non-compliance with statutes.

SEC. 303. In case any coal mine does not, in appliance for the safety of the persons working therein, conform to the provisions of this chapter, or the owner or agent disregards the requirements of this chapter, any court of competent jurisdiction may on application of the inspector, by civil action in the name of the state, enjoin or restrain the owner or agent from working or operating such mine until it is made to conform with the provisions of this chapter; and such remedy shall be cumulative, and shall not take the place of or affect any other proceedings against such owner or agent authorized by law for the matter complained of in such action.

When governor shall convene a board of examiners.

SEC. 304. When written charges of gross neglect or duty or malfeasance in office against any inspector is made and filed with the governor, signed by not less than fifteen coal miners or one or more operators of mines, together with a bond in the sum of five hundred dollars, payable to the state, and signed by two or more responsible freeholders, and conditioned for the payment of all costs and expenses arising from the investigation of such charges, the governor shall convene a board of examiners, to consist of two practical coal miners, one chemist, one mining engineer and one operator, at such time and place as he deems best, giving ten days' notice to the inspector against whom the charges are made, and also the person whose name appears first in the charges; and the board when so convened, and having been first duly sworn, truly to try and decide the charges made

Duties of the board.

all summon any witnesses so desired by either party, and examine them on oath, which may be administered by any member of the board, and depositions may be read on such examination, as in other cases; and the board shall examine fully into the truth of such charges, and report the result of their investigation to the governor; and the board shall award the costs and expenses of such investigation against the inspectors or the persons signing the bond according to their finding, against said inspector or in his favor, which costs and expenses shall include the compensation of such board, of five dollars per day for each member, for the time occupied in the trial and in traveling from and to their homes; and the attorney general shall forthwith proceed to collect such costs and expenses, and pay the same into the state treasury, being in the first instance paid out of the state treasury on the certificate of the president of such board.

SEC. 305. In all coal mines in the state the miners employed and working therein, the owners of the land or other persons interested in the rental or royalty of any such mine, shall at all proper times have full right of access and examination of all scales, machinery or apparatus used in or about such mine to determine the quantity of coal mined,

for the purpose of testing the accuracy and correctness of such scales, machinery or apparatus; and such miners, landowners or other persons may designate or appoint a competent person to act for them, who shall at all proper times have full right of access and examination of such scales, machinery or apparatus, and seeing all weights and measures of coal mined, and the accounts kept of the same; but not more than one person on behalf of the miners collectively, or one person on behalf of the landowners or other persons interested in the rental or royalty jointly, shall have full right of access, examination and inspection of scales, weights, measures and accounts at the same time, and that such person shall make no unnecessary interference with the use of such scales, machinery or apparatus; and the miners employed in any mine may, from time to time, appoint two of their number to act as a committee to inspect, not oftener than once in every month, the mine and the machinery connected therewith, and to measure the venting current, and if the owner, agent or manager so desires, he may accompany said committee by himself or two or more persons which he may appoint for that purpose;

the owner, agent or manager shall afford every necessary facility for making such inspection and measurement, but the committee shall not in any way interrupt or impede the work going on in the mine at the time of such inspection and measurement, and said committee shall, within ten days after such inspection and measurement, make a correct report thereof to the inspector of mines, on blanks to be furnished by said inspector for that purpose; and if such committee make to the inspector a false or untrue report of the facts, such act shall constitute a violation of this section.

Right of access to mines, etc.

Right to test the accuracy of the scales.

Miners to appoint a committee to inspect mine and machinery, etc.

Committee to report to the inspector.

SEC. 306. Only a pure animal or vegetable oil, or other oil as free from smoke as a pure animal or vegetable oil, and not the product or by-product of rosin, and which shall, on inspection, comply with the following test, shall be used for illuminating purposes in the mines of this state: All such oil must be tested at sixty degrees Fahrenheit. The specific gravity of the oil must not exceed twenty-four degrees Tagliabue. The test of oil must be made in a glass jar one and five-tenths inches in diameter by seven inches in depth. If the oil to be tested is below forty-five degrees Fahrenheit in temperature, it must be heated until it reaches about eighty degrees Fahrenheit; and should the oil be above forty-five degrees and below sixty degrees Fahrenheit it must be raised to a temperature of about seventy degrees Fahrenheit, when, after being well shaken, it should be allowed to cool gradually to a temperature of sixty degrees Fahrenheit, before finally being tested. In testing the gravity of the oil, the Tagliabue hydrometer must be, when possible, read from below, and the last line which appears under the surface of the oil shall be regarded as the true reading. In case the oil under test should be opaque or turbid, one-half of the capillary attraction shall be deemed and taken to be the true reading. Where the oil is tested under difficult circumstances, an allowance of one-half degree may be made for possible error in parallax before condemning the oil for use in the mine. All oil sold to be used for illuminating purposes in the mines of this state, shall be contained in barrels or packages branded conspicuously with the name of the dealer, the specific gravity of the oil, and the date of shipment.

SECTION 2. That section 306 be supplemented by the enactment of the following section, numbered as indicated:

SEC. 306a. Any person or persons, firm or corporation, which ships any oil contained in any barrel or barrels, package or packages, which are not branded as prescribed in section 306, said oil to be used for illuminating purposes in coal or any other mines, and any person or persons, firm or corporation which sells any oil other than that prescribed in section 306, to be used for illuminating purposes in coal or other mines, and any person or persons, firm or corporation, having in charge the operation or running of any mine, which, in a mine under his or its charge uses or permits the use of any oil other than that prescribed in section 306, and any miner or mine employe who uses, with a knowledge of its character, in any mine in this state, any oil other than that prescribed in section 306, shall be fined not less than five nor more than fifty dollars; and any individual, firm, company or corporation which sells any oil other than that prescribed in section 306, in a quantity exceeding five barrels at one sale, to be used for illuminating purposes in coal or other mines, shall be fined not less than twenty-five nor more than one hundred dollars. Mayors and justices of the peace shall have jurisdiction to try any violations of this section, and their judgment shall be final.

every person who, after being once convicted of violating this section, shall be convicted of again violating any of the provisions of this section, may, in addition to the fine before provided, be imprisoned not less than ten days nor more than thirty days. On complaint, before a mayor or justice of the peace, of a second violation of this act involving the punishment of imprisonment, if a trial by jury be not lived, a jury shall be chosen and the case tried, after the manner provided in section 3718a of the Revised Statutes. All fines assessed and collected under prosecutions begun, or caused to be begun by the chief inspector of mines, or any district inspector of mines, shall be paid by the court to the chief inspector of mines, and by him paid into the state treasury to the credit of a fund which is hereby appropriated for the use of the chief inspector of mines in prosecuting violations of this section. Any excess of fines collected over the expenses incurred in prosecutions under this section remaining at the close of the fiscal year, shall be credited to the general revenue fund of the state.

SECTION 3. Section 306, as amended March 29, 1892, (O. L., 164), is hereby repealed, and this act shall take effect and be in force from and after its passage.

SEC. 6871. Whoever knowingly violates any of the provisions of sections two hundred and ninety-seven, two hundred and ninety-eight, two hundred and ninety-nine, two hundred, three hundred and one, three hundred and two, and three hundred and five, or does any act whereby the life or health of the persons, or the security of any mine or machinery are endangered; or any miner or other person employed in any mine governed by this statute, who intentionally and willfully neglects or refuses to securely prop the roof of any working place under his control; or neglects or refuses to obey any order given by the superintendent of mine in relation to the security of the mine in the part thereof where he is at work, or for fifteen feet back from the face of his working place; or any miner, workman, or other person who shall knowingly injure any water-gauge, barometer, air-course or brattice, or shall obstruct or throw open any air-ways, or shall handle or disturb any part of the machinery of the hoisting engine, or open a door of the mine and not have the same closed again, whereby danger produced either to the mine or those that work therein; or who shall enter any part of the mine against caution; or who shall disobey any order given in pursuance of this act; or who shall do any willful act, whereby the lives and health of persons working in the mine, or the security of the mine, or the machinery thereof, is endangered; or any person in charge of a mine, whenever loss of life occurs by accident connected with the working of such mine, or by explosion, who neglects or refuses to give notice thereof forthwith, by mail or otherwise, to the chief inspector of mines, or to the coroner of the county in which such mine is situated; or any such coroner who neglects or refuses to hold an inquest upon the body of the person whose death has

Mines; penalty for injuring.

Penalty for neglecting to securely prop the roof.

Penalty for disturbing machinery.

Penalty for neglecting to notify coroner or chief inspector.

To supply
timber.

been thus caused, and return a copy of his findings and all the testimony to the inspector, shall be fined not less than fifty dollars, or imprisoned in the county jail not more than thirty days, or both. The owner, agent, or operator of every coal mine shall keep a supply of timber constantly on hand, and shall deliver the same to the working place of the miner, and no miner shall be held responsible for accidents which may occur in mines where the provisions of this section have not been complied with by the owner, agent, or operator thereof.

AN ACT

For regulating the weighing of coal at the mine where mined.

Weighing of
coal; oath of
weighmaster.

SECTION 1. Be it enacted by the General Assembly of the State of Ohio, That whoever shall be employed to weigh coal as it comes from the mine where mined, where such weight shall be the weight upon which the amount of mining for the person mining such coal shall be estimated, and the weight upon which the royalty due the owner of the lands from which such coal shall be mined, shall be estimated at any mine where ten or more miners shall be employed, shall take and subscribe an oath before some competent officer to administer such oath, that he will correctly weigh all coal taken from such mine under existing contracts between operator, miner and land owners, and give due credit for the same to the miner mining such coal in said mine, and the landowner when required, owning the lands from which such coal is mined; and shall enter into bond in the sum of three hundred dollars, with two sufficient sureties and payable to the state of Ohio, said bond to be approved by and filed with the township clerk of the township where such mine may be situated for the faithful discharge of such oath. Said oath to be endorsed upon said bond.

Bond of land-
owner.

Duty of prose-
cuting attor-
ney.

SEC. 2. It shall be the duty of the prosecuting attorney of the county in which such mine is situated, to prosecute all persons charged with violation of such oath.

Penalty.

SEC. 3. Any person convicted of such violation shall be fined in the sum of not less than fifty dollars, nor more than five hundred dollars, or imprisoned in the county jail of the county where conviction is had for not less than ten days nor more than sixty days, or both, at the discretion of the court.

When act takes
effect.

SEC. 4. This act shall take effect and be in force from and after September 1, 1898.

Passed April 21, 1898.

AN ACT

Supplementary to section 3184 of the Revised Statutes, as amended
March 22, 1891, to be sectionally numbered 3184a.

SEC. 3184a. Any person who performs labor in mining coal, or removing the same from the mines, or other manual labor connected therewith, for any coal or mining company owning, operating or leasing coal mines within this state, by virtue of a contract with the owner, owners, or his or their authorized agent, shall have a lien to secure the payment for the same upon the mine or mines of such company and upon all the rights of the company or corporation owning or leasing such mines, and upon all the personal property of any such company or corporation used in conducting their business of mining coal, whether the same be located at or near the mines or elsewhere.

Lien upon
mines for
labor.

Passed March 27, 1889.

AN ACT

"To permit mine and quarry operators to cross roads," passed
February 17, 1893.

SECTION 1. That any individual, partnership or corporation in Ohio, who may now or hereafter own any land or any interest either in fee or otherwise, containing any coal, clay or stone, and over any portion of which shall pass any state, county or township road or public highway, with the consent of the board of county commissioners in case of state or county roads, or township trustees in case of township roads, shall have and are hereby authorized to excavate, mine, quarry through or under any such road; provided, however, that before said work shall be commenced, said individual, partnership or corporation shall execute and deliver to the board of county commissioners of any such county, a bond with good and sufficient surety, in such an amount as shall be by said board considered sufficient to cover all damages that may accrue by reason of excavating, mining or quarrying through or under any such road, the same to be approved by said board; conditioned that while crossing over or mining or quarrying under any such road, a safe and unobstructed passage way or road shall be kept open by such individual, partnership or corporation for public use, and as soon as practicable the said road shall be fully restored to its original safe and passable condition.

Conditions
upon which
mine and
quarry opera-
tors permitted
to undermine
or cross public
roads.

SEC. 4374. A person owning land adjoining a mine worked for the production of coal, ore, or other mineral substance, or a person having an interest in such mine, having reason to believe that the protection of his interest in the

How owner of
land adjoining
mine may
enter and ex-
amine same.

mine, or in like minerals on his adjoining land, requires it, upon making affidavit to that effect before a justice of the peace or other proper officer, may enter such mine, and have an examination or survey made thereof: but such examination or survey shall not be made until one day's notice thereof is given to the parties in interest, nor at unreasonable times, but in such time and in such manner as will least interfere with the working of the mine, if the same is being operated at the time.

Facilities for such examination.

SEC. 4375. When the affidavit has been made and notice given, the person in charge of the mine shall, on the application of the party giving the notice, transport, by the ordinary method in use at such mine for entrance and exit, a surveying party of not more than five persons, furnish to such party a competent guide and supply them with approved safety lamps; and for every person so transported, he shall be entitled to receive, from the person requesting such survey, the sum of fifty cents, unless the shaft exceeds two hundred and fifty feet in depth, when he shall be entitled to the sum of one dollar for each person, and five dollars per day for the guide.

Damages sustained by such examination.

SEC. 4376. If the parties working or occupying such mine sustain any damage, for which compensation should be made, by reason of such examination or survey having been made at unreasonable times, or in an improper or unwarrantable manner, the person making the same, or causing the same to be made, shall be liable therefor.

Penalty for hindering such examination.

SEC. 4377. The parties working or occupying such mine shall not hinder or obstruct the examination or survey, when made at a reasonable time and in a reasonable manner, under a penalty of not less than fifty nor more than five hundred dollars for each offense, to be recovered before a court of competent jurisdiction.

Action for refusal to permit examination.

SEC. 4378. The party who makes the application for the survey may, upon the refusal of the owner or person in charge of the mine to comply with the foregoing provisions, recover judgment, as upon default, in a court of competent jurisdiction, against the owner of such mine, in such sum as such party may declare under oath he believes to be justly due him for coal or other mineral belonging to him taken by the owner of such mine without his permission; and the statute of limitations shall not be operative against such claim; but the demand and refusal to enter such mine shall be first proven to the satisfaction of the court or jury, and the refusal of the person in charge of the mine shall be held to be the refusal of the owner.

To whom provisions concerning examination available.

SEC. 4379. The provisions of this chapter shall be available to any person who, on his oath, states that he is the owner or authorized agent of any owner of land which he believes contains coal or other valuable mineral substance within one mile of such shaft, although it does not adjoin any mine of the owner of such shaft; the affidavit required

shall be sufficient if it state that the lands in which the affiant is interested are in the vicinity of such shaft, and not more than one mile distant therefrom; and service upon any owner or superintendent of such shaft shall be sufficient.

AN ACT

To protect the mines in Ohio and the lives of the persons employed therein.

SECTION 1. Be it enacted by the General Assembly of the State of Ohio, It shall be the duty of every owner, agent, or lessee of any land within this state underlaid with mineral stone coal, and of every person, firm, or corporation engaged in drilling or exploring for natural gas or oil upon such land, upon notice from the chief inspector of mines, or from any district inspector of mines, or before abandoning or ceasing to operate any gas or oil wells drilled upon such lands, to make or cause to be made, a complete and accurate map thereof, which shall show the boundaries of each tract of land drilled upon, and the buildings and all monuments found upon such premises. Each well shall be plainly marked by a name, number or letter, and located whenever possible with reference to some well defined and lasting monument, so that its exact location may be easily determined. Such map shall show the depth at which each well pierced each vein of coal, giving the thickness of each strata. On each map shall be a sworn statement of the engineer or surveyor making it, together with a sworn statement of the owner, agent or lessee operating such oil or gas wells, or of the owner of such premises, that it is a true and accurate representation of the property; and a copy thereof drawn upon tracing linen, shall be filed in the office of the chief inspector of mines, and be open to inspection at all reasonable times.

SEC. 2. It shall be the duty of every person, firm or corporation owning, or leasing any land underlaid with mineral stone coal, and upon which gas or oil wells have been drilled to, or below any vein or seam of such mineral coal, before proceeding to mine such coal, to make or cause to be made or filed in the office of chief inspector of mines such a map as is described in section 1 of this act.

SEC. 3. Whenever any person, firm or corporation sinks any well for gas or oil on lands upon which coal or other minerals is being mined, and which well passes through any mine, it shall be the duty of the person owning such land, or drilling such well, to drill the hole to a depth of at least ten feet below the vein of coal or other mineral being mined, when such hole shall be cased, and sealed upon the outside of the casing with suitable material

to the level of the coal floor; and each vein of mineral being mined, pierced by such well shall be sealed in the same manner.

SEC. 4. It shall be the duty of the owner of any lands, or of the owner, or operator of any well drilled for gas or oil thereon, and which in drilling shall have passed through any vein of minable coal, before abandoning, or ceasing to operate any such well, and before drawing the casing therefrom, to seal the same in the manner following: There shall be driven in such well to a depth of at least twenty-five feet below the floor of the lowest coal measure, a round, seasoned wooden plug at least two feet in length, and equal in diameter to the diameter of the well at that point. After the plug has been properly driven, there shall be filled in on top of the same to a depth of at least twenty feet, hydraulic cement lime and sharp sand, well mixed one part each of the two former to two parts of the latter material. Immediately thereafter there shall be driven well down into the cement, a round, seasoned wooden plug, at least three feet in length, tapering in form and to be of the same diameter at a distance of twelve inches from the smaller end as the diameter of the well at the point to which the plug is driven.

Where any gas or oil well passes through any gas or oil bearing rock lying above the coal measures, the owner, agent or lessee thereof, shall, upon abandoning or ceasing to operate such well, drive a dry wooden plug not less than two feet in length, equal in diameter to the diameter of the hole, to a point as near as possible to the top of the coal vein, on the top of which there shall be filled at least five feet of sediment of drillings, or cement and sand, as the mine inspector shall direct.

SEC. 5. The owner, agent or lessee of any land upon which there has been drilled any oil or gas well which has penetrated any vein of coal shall, before abandoning or ceasing to operate, or removing the casing from such well give due notice in writing to the chief inspector of mines of such fact and designating therein the well to be abandoned; and it shall thereupon be the duty of such chief inspector of mines, or of any district inspector, to go at once to such well, and require the owner or agent of the land, or the owner, agent or lessee of such well to plug the well as provided in this act.

In case such well is not plugged in the manner required by law within ten days after the time the chief or district inspector shall have ordered the same done, the chief or district inspector may cause the well to be plugged, and the costs and expenses of such plugging may be recovered of the person, firm or corporation whose duty it is to seal the same, in the manner provided for the recovery of penalties by section six of this act.

SEC. 5a. It shall be the duty of every person, firm or corporation before attempting to drill any gas or oil well upon any land underlaid with mineral stone coal, first to make application to the chief inspector of mines for a license

therefor, upon blanks to be furnished by him, granting to such person, firm or corporation the right to drill such gas, oil well or wells. Said application must contain an accurate description of the lot or land upon which said gas or oil well is to be drilled, together with such other information and descriptive matter as the chief inspector of mines may require; and for purposes such inspector is hereby authorized and empowered to prepare or cause to be prepared such blanks and forms as he may consider necessary to subserve the purposes of this act.

SEC. 5b. Upon such application being made and signed by the person, firm or corporation desiring such license and the payment of a fee therefor, hereinafter designated, it shall be the duty of such chief inspector of mines to issue to such person, firm or corporation for each and every well so to be drilled, a license granting to them the right to drill such well upon the lot or land so described in such application. Such person, firm or corporation shall pay to such inspector of mines for each license herein provided for, the sum of five dollars, which sum shall be paid to such chief inspector of mines and by him paid to the treasurer of state, to be credited to a fund, a sufficient amount of which is hereby appropriated for the purpose of defraying the expenses of the inspector of oil and gas wells for the sealing of abandoned oil and gas wells in the manner set forth in the several sections of this act.

SEC. 5c. When in the opinion of the chief inspector of mines, it becomes necessary, he may appoint a suitable person or persons to attend upon and witness the plugging and sealing of abandoned gas and oil wells as provided in this act. A person, firm or corporation desiring to abandon any gas or oil well shall notify said chief inspector of mines or other person appointed by him for such purpose of such desire and of the time when said well will be plugged and sealed. It shall then be the duty of such inspector of mines or other person appointed by him, as provided herein, upon receipt of reasonable notice to attend upon and witness the sealing of such well. The person witnessing the sealing of such well shall immediately make report to the chief inspector of mines on blanks provided therefor, giving the date, manner of sealing, names of persons engaged therein, together with the witnesses present at the time of said sealing, and such other information as the chief inspector of mines may require.

SEC. 5d. Such person so appointed to witness the plugging and sealing of abandoned wells for his services shall receive the sum of one dollar and his actual expenses in connection therewith, to be paid out of the fund herein provided, upon a requisition signed by the chief inspector of mines.

SEC. 5e. The chief inspector of mines shall keep a record in his office in which shall be entered a copy of each application for a license, together with the date of issue of such license and to whom issued; also the date when each

well was abandoned and sealed, and the names of the persons witnessing such sealing.

SEC. 6. Every person, firm or corporation, failing to comply with any of the provisions of this act, shall be subject to a penalty of not less than one hundred dollars, nor more than one thousand dollars, to be recovered by action in the name of the state, and on collection, paid into the treasury of the state to the credit of a fund which is hereby appropriated for prosecuting violations of this act, to be paid out on requisitions signed by the chief inspector of mines. Such action may be instituted in the court of common pleas of the county wherein any such well is located or of Franklin county.

In addition to the penalties herein provided, every person violating any of the provisions of this act shall be deemed guilty of a misdemeanor, and on conviction, be fined in any sum not less than fifty dollars nor more than five hundred, or be imprisoned not less than ten days nor more than sixty days, or both.

SEC. 7. This act shall take effect and be in force from and after its passage.

Passed April 23, 1898.

AN ACT

To regulate drilling, operation and abandonment of petroleum oil, natural gas and mineral water wells, and to prevent certain abuses connected therewith.

SECTION 1. *Be it enacted by the General Assembly of the State of Ohio.* That the owner or operator of any well being constructed for the production of petroleum oil, natural gas or mineral water, shall, before drilling into the oil and gas-bearing rock, incase such well with good and sufficient wrought iron casing, and in such manner as shall exclude all surface or fresh water from the lower part of such well from penetrating the oil or gas bearing rock. Should any well be drilled through the first into a lower oil or gas bearing rock, the same shall be cased in such manner as will exclude all fresh water above the last oil or gas bearing rock penetrated.

SEC. 2. That the owner or operator of any well constructed for either or any of the purposes named in the first section of this act, when about to abandon or cease operating the same, and before drawing the casing therefrom, shall securely fill such well with rock sediment, or with mortar composed of two (2) parts sand and one (1) part cement to the depth of two hundred (200) feet above the top of the first oil or gas bearing rock, in such manner as shall prevent the surface or fresh water from penetrating to the oil or gas bearing rock, and also as shall prevent the gas and

oil from escaping therefrom. If the owner or operator of any such well shall fail to or shall inefficiently comply with the provisions of this section, then the owner of the land upon which such well is situated shall, forthwith comply therewith. If all the persons hereinbefore named shall fail to or shall inefficiently fill such well in the manner hereinbefore described, then it shall be lawful for any person, after written demand therefor to any of said persons, to enter the premises where such well is situated, take possession thereof and fully comply with the provisions of this section. The reasonable cost and expense thereof shall forthwith be paid by the owner or the operator of the well, and on his default by the owner of the land. The amount of such reasonable cost and expense shall forthwith be a lien upon the fixtures and machinery and leasehold interest of the owner and operator of said well, as well as upon the title and interest of the land owner in the land upon which such well is situated, and may be recovered and enforced against said owner or operator and said land owner in the order named, in any court of competent jurisdiction.

SEC. 3. That any person, copartnership or corporation, in possession of either as owner, lessee, agent or manager of any well producing natural gas, in order to prevent the said gas wasting by escape, shall, within ten days after this act takes effect and within ten days after penetrating the gas bearing rock, in any well hereafter drilled, shut in and confine the gas in said well until and during such time as the gas therein shall be utilized for light, fuel or power purposes; provided, this shall not apply to any well operated for oil.

SEC. 4. That it shall be unlawful for any person, copartnership or corporation to use natural gas for illuminating purposes in what are known as flambeau lights; but nothing herein shall prohibit the use of "jumbo" burners or other burners consuming no more gas than such "jumbo" burners; but the person, copartnership or corporation consuming said gas and using such burners in the open air shall enclose the same in glass globes or lamps, and anyone using such gas in the open air, or in or around derricks, shall turn off said gas not later than 8 o'clock in the morning of each day such lights or burners are used, and shall not turn on or relight the same between the hours of 8 o'clock a. m. and 5 o'clock p. m.

SEC. 5. That any person, copartnership or corporation violating any of the provisions of this act shall be liable to a penalty of one hundred dollars, to be recovered with costs of suit in a civil action in the name of the State of Ohio, in any court of competent jurisdiction in the county in which the act shall have been committed or omitted. Such suit may be brought at the instance of any resident of the State of Ohio without security or liability for costs. The amount of said penalty when collected shall be paid one-half into the school fund of the county in which

said suit is brought, and one-half to said person at whose instance said suit shall have been brought.

SEC. 6. That the act entitled "An act regulating the casing of oil wells and the mode of plugging the same when abandoned," passed April 19, 1883 (O. L. 80, p. 190), and an act entitled "An act to prevent the wasting of natural gas and to provide for the plugging of all abandoned wells," passed February 19, 1889 (O. L. 86, p. 48), be and the same are hereby repealed.

SEC. 7. That this act shall take effect and be enforced from and after the first day of April, A. D. 1893.

Passed February 9, 1893.

AN ACT

To provide against the payment of wages in scrip, orders, etc., and against selling goods or supplies to employes at excessive prices.

SEC. 7015. It shall be unlawful for any person, firm, company, or corporation to sell, give, deliver, or in any manner issue, directly or indirectly, to any person employed by him or it, in payment of wages due for labor, or as advances on the wages of labor not due, any scrip, token, draft, check, or other evidence of indebtedness payable or redeemable otherwise than in money; any violations of the provisions of this section shall be punishable by a fine not less than twenty-five nor more than one hundred dollars, or imprisonment of not more than thirty days, or both; and the amount of any scrip, token, check, draft, order, or other evidence of indebtedness, sold, given, delivered, or in any manner issued, in violation of the provisions of this section, shall be recovered in money at the suit of any holder thereof, against the person, firm, company, or corporation selling, giving, delivering, or in any manner issuing the same; and any scrip, token, check, draft, order, or any other evidence of indebtedness issued in violation of the provisions of this section, and presented by the holder thereof, shall be taken as prima facie evidence in any court of the guilt or indebtedness of any person, firm, company or corporation selling, giving, delivering, or in any manner issuing the same, and for the purpose of this act, in case of a firm or corporation, the person selling, giving, delivering, or in any manner issuing said scrip, token, check, draft, order or other evidence of indebtedness shall be the defendant to the criminal action, and the firm, company or corporation shall be held as the defendant in the civil action. Nothing in this section shall apply or affect the right of any person, firm, company or corporation from giving orders on any store or business house, or firm in the business or profits of which he has no interest, directly or indirectly.

SEC. 7016. Whoever compels, or in any manner seeks to compel, or attempts to coerce an employe of any person, firm, or corporation to purchase goods or supplies from any particular person, firm or corporation, shall be fined not more than one hundred nor less than twenty dollars, or imprisoned not more than sixty days, or both; and whoever sells goods or supplies of any kind, directly or indirectly, to his employe, or pays the wages of labor of his employes in goods or supplies of any kind, directly, or through the invention of scrip, order, or other evidence of indebtedness, at higher prices than the reasonable or current market value in cash of such goods or supplies, shall be liable to like punishment and penalties above specified, and shall in addition thereto, be liable in civil action to the party aggrieved, in double the amount of any charges made for such goods or supplies in excess of the reasonable or current market value in cash, of such goods or supplies.

SEC. 7017. The prosecuting attorney of any county, upon complaint made to him of any violation of either of the two preceding sections within his county, shall cause such complaint to be investigated before the grand jury.

AN ACT

To amend "an act to secure prompt payment of wages of certain employes twice in each month," passed March 21, 1887 (vol. 84, page 214).

SECTION 1. Be it enacted by the General Assembly of the State of Ohio, That the above recited act be so amended as to read as follows:

SEC. 1. That every incorporated manufacturing, mining, mercantile, street-railroad, telegraph, telephone, express, water company, and construction companies, or contractors building railroads, shall pay, in lawful money, or by check, draft or order, payable in lawful money, at sight or on demand, on a bank located at a distance not greater than eight miles from the place where said labor was performed, twice in each month, each and every employe engaged in its business, the wages earned by such employe to within ten days of the date of said payment; provided, however, that if at any time of payment any employe shall be absent from his regular place of labor, he shall be entitled to said payment at any time thereafter, during their regular business hours, upon demand; and provided, further, that said employer may retain at each payment, any amount said employer may order withheld from his or her wages for rent, powder, tools, tool sharpening, or oil due said employer.

Payment of
wages of cer-
tain employes
twice a month.

Retention of
certain
amounts.

[Section 2, as amended March 27, 1889.]

SEC. 2. Any corporation mentioned in section 1 of this act, violating any provisions of this act, shall be punished by a fine not exceeding one hundred nor less than fifty dollars. Justices of the peace, mayors and police judges shall have final jurisdiction in all cases arising under the provisions of this act; and a corporation shall be notified by warrant to be served upon the president, secretary, treasurer, or managing agent thereof; provided, that the defendant shall be entitled, on demand, to a trial by jury. If such prosecution be before a justice of the peace, and a trial by jury be not waived, the said justice shall issue a venire to any constable of the county, containing the names of sixteen electors of the county, to serve as jurors to try such case, and make due return thereof. Each party shall be entitled to two peremptory challenges, and shall be subject to the same challenges as jurors are subject to in criminal cases in the court of common pleas. If the venire of sixteen names be exhausted without obtaining the required number to fill the panel, the justice may direct the constable to summon any of the bystanders to act as jurors; but costs shall not be required to be advanced or paid by a person or an officer authorized or required by statute to prosecute such cases; and if the defendant be acquitted, or if he be convicted, and committed to jail in default of payment of fine and costs, the justice, mayor, or police judge, before whom the case was brought, shall certify such costs to the county auditor, who shall examine, and, if necessary, correct the account, and issue his warrant to the county treasurer in favor of the respective officers to whom costs are due for the amount due to each; provided, complaint for such violation is made within thirty days from the date thereof; providing that in pursuance of and under this act there shall not be more than one conviction of the same corporation during any two weeks. And it shall be the duty of the inspector of shops and factories, on complaint of three or more employes of such corporation to enforce the provisions of this act.

AN ACT

To authorize the creation and to provide for the operation of tribunals of voluntary arbitration to adjust industrial disputes between employers and employed.

SECTION 1. Be it enacted by the General Assembly of the State of Ohio, That the court of common pleas of each county, or a judge thereof in vacation, shall have the power, and upon the presentation of the petition, or of the agreement hereinafter named, it shall be the duty of said court, or a judge thereof in vacation, to issue, in the form hereinafter

named, a license or authority for the establishment within and for each county of tribunals for voluntary arbitration and settlement of trade disputes between employers and employed in the manufacturing, mechanical, or mining industries.

SEC. 2. That said petition or agreement shall be substantially in the form hereinafter given, and the petitions shall be signed by at least forty persons employed as workmen and by four or more separate firms, individuals, or corporations within the county, or by at least four employers, each of whom shall employ at least ten workmen, or by the representative of a firm, corporation, or individual employing not less than forty men in their trade or industry; provided, that at the time the petition is presented, the judge before whom said petition is presented, may, upon motion, require testimony to be taken as to the representative character of said petitioners, and if it appears that the said petitioners do not represent the will of a majority, or at least one-half of each party to the dispute, the license for the establishment of the said tribunal may be denied, or may make such other order in this behalf, as to him shall seem fair to both sides.

SEC. 3. If the said petition shall be signed by the requisite number of both employers and workmen, and be in proper form and contain the names of the persons to compose the tribunal, being an equal number of employers and workmen, the judge shall forthwith cause to be issued, a license substantially in the form hereinafter given, authorizing the existence of such tribunal and fixing the time and place of the first meeting thereof, and an entry of the license so granted shall be made upon the journal of the court of common pleas of the county in which the petition originated.

SEC. 4. Said tribunal shall continue in existence for one year from the date of the license creating it, and may take jurisdiction of any dispute between employers and workmen, in any mechanical, manufacturing, or mining industry or business, who shall have petitioned for the tribunal, or have been represented in the petition therefor, or who may submit their disputes in writing to such tribunal for decision. Vacancies occurring in the membership of the tribunal shall be filled by the judge or court that licensed said tribunal, from three names presented by the members of the tribunal remaining of that class in which the vacancies occur. The removal of any member to an adjoining county shall not cause a vacancy in either the tribunal or the post of umpire. Disputes occurring in one county may be referred to a tribunal already existing in an adjoining county.

The place of umpire in any of said tribunals and vacancies occurring in such place, shall only be filled by the mutual choice of the whole of the representatives of both employers and workmen constituting the tribunal, immediately upon the organization of the same. The umpire shall be called upon to act after disagreement is manifested in the

tribunal by failure during three meetings held and full discussion had. His award shall be final and conclusive upon such matters only as are submitted to him in writing and signed by the whole of the members of the tribunal, or by parties submitting the same.

SEC. 5. The said tribunal shall consist of not less than two employers or their representatives and two workmen. The exact number which shall in each case constitute the tribunal shall be inserted in the petition or agreement, and they shall be named in the license issued. The said tribunal, when convened, shall be organized by the selection of one of their number as chairman and one as secretary, who shall be chosen by a majority of the members, or if such majority cannot be had after two votes then by secret ballot, or by lot, as they prefer.

SEC. 6. The members of the tribunal shall receive no compensation for their services from the city or county, but the expenses of the tribunal, other than fuel, light, and the use of the room and furniture, may be paid by voluntary subscription, which the tribunal is authorized to receive and expend for such purposes. The sessions of such tribunal shall be held at the county seat of the county where the petition for the same was presented, and a room in the courthouse for the use of said tribunal shall be provided by the county commissioners.

SEC. 7. When no umpire is acting, the chairman of the tribunal shall have power to administer oaths to all witnesses who may be produced, and a majority of said tribunal may provide for the examination and investigation of books, documents and accounts pertaining to the matters in hearing before the tribunal, and belonging to either party to the dispute; provided, that the tribunal may unanimously direct that instead of producing books, papers and accounts before the tribunal an accountant, agreed upon by the entire tribunal, may be appointed to examine such books, papers and accounts, and such accountant shall be sworn to well and truly examine such books, documents and accounts, as may be presented to him, and to report the results of such examination in writing to said tribunal. Before such examination the information desired and required by the tribunal shall be plainly stated in writing and presented to said accountant, which statement shall be signed by the members of said tribunal, or by a majority of each class thereof. Attorneys at law or other agents of either party to the dispute shall not be permitted to appear or take part in any of the proceedings of the tribunal, or before the umpire.

SEC. 8. When the umpire is acting he shall preside, and he shall have all the powers of the chairman of the tribunal; and his determination upon all questions of evidence, or other questions, in conducting the inquiries then pending shall be final. Committees of the tribunal, consisting of an equal number of each class, may be constituted to examine into any question in dispute between employers and workmen which may have been referred to said

committee by the tribunal, and such committee may hear and settle the same finally, when it can be done, by a unanimous vote, otherwise the same shall be reported to the full tribunal, and be there heard, as if the question had not been referred. The said tribunal, in connection with the umpire, shall have power to make, ordain and enforce rules for the government of the body when in session, to enable the business to proceed with in order, and to fix its sessions and adjournments; but such rules shall not conflict with this statute, nor with any of the provisions of the constitution and laws of Ohio.

SEC. 9. Before the umpire shall proceed to act, the question or questions in dispute shall be plainly defined in writing, and signed by the members of the tribunal, or a majority thereof of each class, or by the parties submitting the same; and such writing shall contain the submission of the decision thereof to the umpire by name, and shall provide that his decision thereon, after hearing, shall be final. The umpire shall be sworn to impartially decide all questions that may be submitted to him during his term of office. The submission and his award may be made in the form hereinafter given, and said umpire must make his award within ten days from the time the question or questions in dispute are submitted to him. Said award shall be made to the tribunal; and if the award is for a specific sum of money, said award may be made a matter of record by filing a copy thereof in the court of common pleas of the county wherein the tribunal is in session. When so entered of record it shall be final and conclusive, and the proper court may, on motion of anyone interested, enter judgment thereon; and when the award is for a specific sum of money, may issue final and other process to enforce the same.

SEC. 10. The form of the joint petition or agreement praying for a tribunal under this act shall be as follows:

To the Court of Common Pleas of———County (or to a judge thereof, as the case may be):

The subscribers hereto, being the number and having the qualifications required in this proceeding, being desirous of establishing a tribunal of voluntary arbitration for the settlement of disputes in the———(here name the branch of industry) trade, and having agreed upon A, B, C, D and E, representing the employers, and G, H, I, J and K, representing the workmen, as members of said tribunal, who each are qualified to act thereon, pray that a license for a tribunal in the———trade may be issued to said persons named above.

Employers.	Names.	Residence.	Works.	No. of employes.

Employes.	Names.	Residence.	By whom employed.

SEC. 11. The license to be issued upon such petition may be as follows:

State of Ohio, }
 County, } ss:

WHEREAS, The joint petition and agreement of four employers (or representatives of a firm, corporation or individual, employing forty men, as the case may be), and forty workmen has been presented to this court (or if to a judge in vacation so state), praying the creation of a tribunal of voluntary arbitration for the settlement of disputes in the ————trade within this county, and naming A, B, C, D and E, representing the employers, and G, H, I, J and K, representing the workmen. Now, in pursuance of the statutes for such case made and provided, said named persons are hereby licensed and authorized to be and exist as a tribunal of voluntary arbitration for the settlement of disputes between employers and workmen for the period of one year from this date, and they shall meet and organize on the ————day of ————, A. D. ————, at ————.

Signed this ————day of ————, A. D. ————.

———Clerk of the Court of Common Pleas———County.

SEC. 12. When the tribunal agrees to submit a matter in controversy to the umpire, it may be in form as follows:

We, A, B, C, D and E, representing employers, and G, H, I, J and K, representing workmen, composing a tribunal of voluntary arbitration, hereby submit and refer unto the umpirage of L (the umpire of the tribunal of the

———trade.) the following subject-matter, namely: [Here state fully and clearly the matter submitted.] And we hereby agree that his decision and determination upon the same shall be binding upon us, and final and conclusive upon the question thus submitted; and we pledge ourselves to abide by and carry out the decision of the umpire when made.

Witness our name this——day of ——, A. D.——.
[Signatures.]

SEC. 13. The umpire shall make his award in writing to the tribunal, stating distinctly his decision on the subject-matter submitted. And when the award is for a specific sum of money, the umpire shall forward a copy of the same to the clerk of the proper court.

AN ACT

To establish a school of mines and mine engineering in the Ohio agricultural and mechanical college.

SECTION 1. Be it enacted by the General Assembly of the State of Ohio, That the trustees of the Ohio state university be and they are hereby required to establish in said university, a school of mines and mine engineering, in which shall be provided the means for studying scientifically and experimentally the survey, opening, ventilation, care and working of mines; and said school shall be provided with a collection of drawings, illustrating the manner of openings, working and ventilating mines and with the necessary instruments for surveying, measuring air, examining and testing the noxious and poisonous gases of mines, and (also) with (the) models of the most improved machinery for ventilating and operating (all the various kinds of) mines with safety to the lives and health of those engaged. Said school shall also be provided with complete mining laboratories, for the analysis of coals, ores, fire-clays and other minerals, and with all the necessary apparatus for testing the various coals, ores, fire-clays, oils, gases, and other minerals.

Ohio State university, establishment of a school of mines.

Course of study; school apparatus, etc.

SEC. 2. Said trustees shall employ competent persons to give instruction in the most improved (and) successful methods of opening, (and operating), surveying and inspecting mines, including the methods and machinery employed for extracting coal, ore, fire-clay, oil, gas and other minerals from the pit's mouth and for facilitating the ascent and descent of workmen, the draining and freeing of mines from water, the causes of the vitiation of air, the quantities of fresh air required under various circumstances, natural ventilation, mechanical ventilation by flues and fans, and other ventilating machinery, the use of air engines, air compressors and coal cutting machinery; also instruction in the various uses of coals, ores, fire-clays, oils, gases and other minerals, and the methods of testing, analyzing and assaying

Employment and duties of instructors.

Cabinet of
specimens to
be kept.

Appropriation.

such minerals; also the methods employed in metallurgical and other processes in the reduction of ores and in determining the qualities of metals particularly iron and steel, as shown by practical and laboratory tests; and there shall be kept in a cabinet properly arranged for ready reference and examination suitably connected with said school of mines (samples of the) specimens from the various mines in the state, which may be sent for analysis, together with the names of the mines and their localities in the counties from which they were sent, and the analysis and a statement of their properties attached; it shall also be his duty to furnish analysis of all minerals found in the state and sent to him for that purpose by residents of this state.

SEC. 3. There is hereby appropriated out of the general revenue fund the sum of three thousand, five hundred dollars (\$3,500), to be expended in the equipment, support and maintenance of said school of mines, as provided for in the first and second sections of this act.

AN ACT

To amend section 1 of an act entitled "An act to compel children under fourteen years of age to attend school a certain length of time each year," of the Revised Statutes of Ohio, passed April 25, 1890.

Children between eight and fourteen years compelled to attend school.

SECTION 1. Be it enacted by the General Assembly of the State of Ohio, That section 1 of an act entitled "An act to compel children under fourteen years of age to attend school a certain length of time each year," of the Revised Statutes of Ohio, passed April 25, 1890, be amended so as to read as follows:

SEC. 1. That all parents, guardians and other persons who have care of children shall instruct them, or cause them to be instructed, in reading, spelling, writing, English grammar, geography and arithmetic, and every parent, guardian, or other persons having control and charge of any child between the ages of eight and fourteen years, shall be required to send any such child or children to a public or private school for a period of not less than twenty weeks in city districts, in each school year, commencing September 1, ten weeks of which, at least, shall be consecutive, which shall commence within the first four weeks of the first term of the school year; and in special, village and township districts, not less than sixteen weeks in each school year, eight of which shall be consecutive, unless such child or children are excused from such attendance by the superintendent of the public, private or parochial schools in cities, or by authority of the board of education in village, special and township districts, when it shall have been shown to the satisfaction of said superintendent, or said board, that the physical or mental condition of such child or children has

been such as to prevent his, her or their attendance at school, or that said child or children are taught at home by some qualified person or persons in such branches as are usually taught in primary schools; and in case the said board or superintendent refuses to grant such excuse from attendance, the parent or guardian of such child or children shall have the right to appeal from the decision of the board to the probate court of the county, on giving bond, within ten days after such decision, to the approval of said court, to pay all costs made therein, and the decision of said court in the matter shall be final; provided, that all youths between eight and sixteen years of age, not engaged in some regular employment, shall attend school for the full term the schools of the district in which they reside are continued in the school year, unless excused for the reasons named in this section, and if the parents or guardians having legal charge of such youth shall fail to send these youth to school regularly for said full term, or said youth shall absent themselves from school without satisfactory excuse, said parents and guardians and said youth shall be subject to the provisions and penalties of section 8 of this act.

SEC. 2. That no child under the age of fourteen years shall be employed by any person, company or corporation during the school term, and while the public schools are in session, unless the parent, guardian, or other person having care of such child, shall be able to give substantial proof that he or she has fully complied with the requirements of section 1 of this act, or that such child has completed the usual course of primary and grammar grades in some public or private school, and such person, company or corporation shall demand such proof before giving employment to any minor, and shall make a record of said proof given, and shall be required, upon the request of the officer (hereinafter provided for) to allow said officer to examine the said record, and also the record as provided for in section 6986aa of the Revised Statutes, and any person, company or corporation employing any child contrary to the provisions of this act shall be liable to a penalty of fifty dollars for each offense, to be recovered in an action for debt in any court, or before any justice of the peace having jurisdiction, and such action shall be brought in the name of the clerk of the board of education.

Unlawful to employ children under fourteen years except under certain conditions.

SEC. 3. That all minors over the age of fourteen, and under sixteen years, who cannot read or write the English language, shall be required to attend school at least one-half of each day, or to attend some evening school organized and maintained by the board of education, or to take regular private instruction from some person qualified, in the opinion of the superintendent of schools in cities, and the clerk of the board of education in special village and township districts to teach such branches until he or she shall obtain a certificate from the superintendent of schools in cities, and the clerk of the board of education in special village and township districts, certifying that said minor can

Regarding minors over fourteen and under sixteen who cannot read and write English.

read at sight and write legibly simple sentences in the English language, and every person, company or corporation having such minor in employment shall be required to exact such school attendance from such minor, and be prepared, upon demand of the hereinbefore mentioned officer, to furnish evidence that such minor does comply with the requirements of this act, and any person, company or corporation failing or neglecting to exact such school attendance from such minors, shall be liable as provided for in section 2 of this act; provided, such person, company or corporation shall not have made provision for the private instruction of such minors.

Where children have been discharged from employment by reason of this act.

SEC. 4. That every parent, guardian or other person having charge or control of any child under the age of sixteen who has been discharged from any business in order to be afforded an opportunity to receive instructions or schooling shall send such child to some public or private school until such child shall have acquired such instructions as section 3 of this act requires, and in case of failure on the part of said parent, guardian or other person to comply with the provisions of this section and of section 1 of this act, unless such child shall have been excused from such attendance by the superintendent of public schools or the clerk of the board of education in special village and township districts for reasons stated in section 1 of this act, such parent, guardian or other person shall be deemed guilty of a misdemeanor, and shall, on conviction, be liable to a fine of not less than five dollars or not more than twenty dollars for the first offense, not less than twenty for each subsequent offense, or to imprisonment for not less than one month nor more than three. The said fines, when paid, to be added to the public school funds of such school district in which the offense occurs.

Habitual truants.

SEC. 5. That all children between the ages of seven and fourteen years who are habitual truants from school, or while in attendance at any public or private school are incorrigible, vicious or immoral in conduct; and all children between said ages, and all minors between the ages of fourteen and sixteen who cannot read and write the English language, who absent themselves habitually from school, or who while in attendance at any public or private school are incorrigible, vicious or immoral in conduct, or habitually wander about the streets and public places during school hours, having no business or lawful occupation, shall be deemed juvenile disorderly persons and subject to the provisions of this act.

Truant officers to be employed in certain cities.

SEC. 6. That in cities of the first and second class the board of education of said cities shall be required to employ one or more truant officers to assist in the enforcement of this act, said truant officer to be vested with police powers, and shall be authorized to enter factories, workshops, stores, and all other places where children may be employed, and perform such other services as the superintendent of schools or the board of education may deem necessary to

the preservation of the morals and good conduct of school children and for the enforcement of this act, and in special village and township districts the board of education shall be required to appoint some constable or other person as truant officer, with same power as said officers have in said cities, and the compensation of such officers shall be fixed by the board of education.

SEC. 7. That the truant officer shall make daily reports to the superintendent of public schools during the school term in cities, and to the clerk of the board of education as often as the clerk shall require it to be done in special village and township districts, and he shall also keep a record of his transactions, subject to the inspection of the members and officers of the board of education and it shall be the duty of the clerk of the board of education to provide suitable blanks for said truant officer.

Truant officers
to make daily
reports.

SEC. 8. That it shall be the duty of all truant officers to examine into all cases of truancy when any such come before their notice, or when requested to do so by the superintendent of public schools, or by the board of education, and to warn such truants, their parents or guardians, in writing, of the final consequences of truancy if persisted in, and also to notify the parent, guardian, or other person having the charge or control of any child between the ages of eight and fourteen years, that the said child is not attending any school, and to require said parent, guardian or other person to cause the said child to attend some recognized school within five days from said notice, and it shall be the duty of said parent, guardian or other person having the legal charge and control of said child, to cause the attendance of said child at some recognized school; if said parent, guardian or other person having the legal charge and control of said child, shall willfully neglect, fail or refuse to cause said child to attend some recognized school, it shall be the duty of said officers to make, or cause to be made, a complaint against said parent, guardian or other person having the legal charge or control of such child, in any court of competent jurisdiction in the city, special, village or township district, in which the offense occurred, for such refusal, failure or neglect, and upon conviction thereof said parent, guardian or other person, as the case may be, shall be punished by a fine of not less than five dollars nor more than twenty dollars, or the court may in its discretion, require persons so convicted to give bond in the penal sum of one hundred dollars, with one or more sureties to be approved by said court, conditioned that said persons so convicted shall cause the child or children under his or her legal charge or control to attend some recognized school within five days thereafter, and to remain at said school during the term prescribed by law; provided, that if said parent, guardian or other person in charge of such child shall prove inability to cause said child to attend said recognized school, then said parent, guardian or other person shall be discharged, and said court, upon complaint of said truant officer or other

Duties of
truant officers.

person, that said child is a juvenile disorderly person, as described in section 5 of this act, proceed to hear such complaint, and if said court shall determine that said child is a juvenile disorderly person within the meaning of this act, such child shall be deemed guilty of a misdemeanor, and said court shall thereupon sentence said child to some juvenile reformatory; provided, that no child or children over ten years old shall be sentenced by any court to a county children's home; and that, where in the judgment of the trustees of any such home, it shall be declared by resolution at a regular meeting by them held, that the character of any child thus sentenced and kept at such home is vicious and so bad as to be detrimental and harmful to the habits and good morals of other children at such home, said trustees are hereby authorized and empowered to remove such child or children to the boys' industrial school at Lancaster, Ohio, or the girls' industrial home at Delaware, Ohio, as the case may be; nor shall such child or children be kept at any such home beyond the period prescribed in section 1, or until such child shall arrive at the age of sixteen years, unless sooner discharged by the board of trustees of said reformatory or home. Provided, however, that said sentence may be suspended in the discretion of the court, for such time as the child shall regularly attend school and properly deport himself or herself. It is further provided that if for any cause the parent, guardian or other person having charge of any juvenile disorderly person, as defined in this act, shall fail to cause such juvenile disorderly person to attend said recognized school, then complaint against such juvenile disorderly persons may be made, heard and tried and determined in the same manner as provided for in case the parent pleads inability to cause said juvenile disorderly person to attend said recognized school. * *

Proceedings
when this act
is violated.

SEC. 9. That it shall be the duty of officers empowered or appointed under this act to assist in the enforcement thereof, to institute, or cause to be instituted, proceedings against any parent, guardian or other person having legal control or charge of any child, or corporation violating any of the provisions of this act; provided, that this law shall not be operative in any school district where there are not sufficient accommodations to seat children compelled to attend school under the provisions of this act, and that no prosecution shall be instituted against any parent, guardian or other person or child in charge of such, unless they have received due notification from an officer empowered under this act that they are acting in violation of this act.

When this act
may be sus-
pended for a
time.

SEC. 10. When any truant officer shall discover to his full satisfaction any child under the age of fourteen years, wholly or partially dependent upon his or her own labor for a living, or who shall be the support of others unable to provide for their own sustenance, or when in the judgment of

the superintendent of the schools, or of the board of education, it may be necessary for such child to contribute to the support of the family of which he or she is a member, it shall be the duty of said truant officer to report such case to the proper authorities, whose duty it is to look after and care for the poor, and to endeavor to obtain such relief as may release such child from labor for such length of time each year as will be required for compliance with section 1 of this act, but such child shall not be declared a pauper or removed to any infirmary, reformatory or children's home, unless he or she shall willfully neglect to take advantage of the provisions made by said truant officer for his or her relief and instruction, and said truant officer failing to obtain such relief, the superintendent of schools, or the board of education, may make suitable arrangements for the private instruction of such child while so adversely conditioned.

SEC. 11. That it shall be the duty of all principals and teachers of all schools, public and private, to report to the clerk of the board of education of the city, special village or township districts in which schools are situated, the names, ages, and residence of all pupils in attendance at their schools, together with such other facts as said clerk may require, in order to facilitate the carrying out of the provisions of this act and the said clerk shall furnish blanks for said purpose, and said report shall be made in the last week of September, December, February and April in each year; and it shall be the further duty of said principals and teachers to report to the truant officers, the superintendent of schools or the clerk of the board of education, all cases of truancy or incorrigibility in their respective schools as soon after these offenses shall have been committed as practicable.

Duty of teachers and principals under this act.

SEC. 12. That when any of the provisions of this act are violated by a corporation, proceedings may be had against any of its officers or agents of said corporation, who in any way participate in, or are cognizant of such violation by the corporation of which they are the officers or the agents, and said officers or the agents shall be subject to the same penalties as individuals similarly offending.

When corporations violate this act.

SEC. 13. Any person or officer mentioned in this act, and designated as having certain duties to perform in the enforcement of any of its provisions, neglecting to perform any such duties, shall be liable to a fine of not less than twenty-five dollars, nor more than fifty dollars for each and every offense; and mayors, justices of the peace and probate judges shall have jurisdiction to try the offenses described in this act, and their judgment shall be final.

Penalty.

Relating to
other statutes.

SEC. 14. Any provision of statutes in force when this act takes effect, which conflicts with any provisions of this act, shall, the extent it is inconsistent with the latter, and not otherwise, be held to be superseded by this act. The provisions of this act shall apply to children entitled under existing statutes to attend school at the institution for the education of the blind, and the deaf and dumb. Other provisions of the statutes in force, relating to school affairs, shall not be affected by this act, sections 4023, 4024 and 4028 of the Revised Statutes are hereby repealed.

Passed April 25, 1890.

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